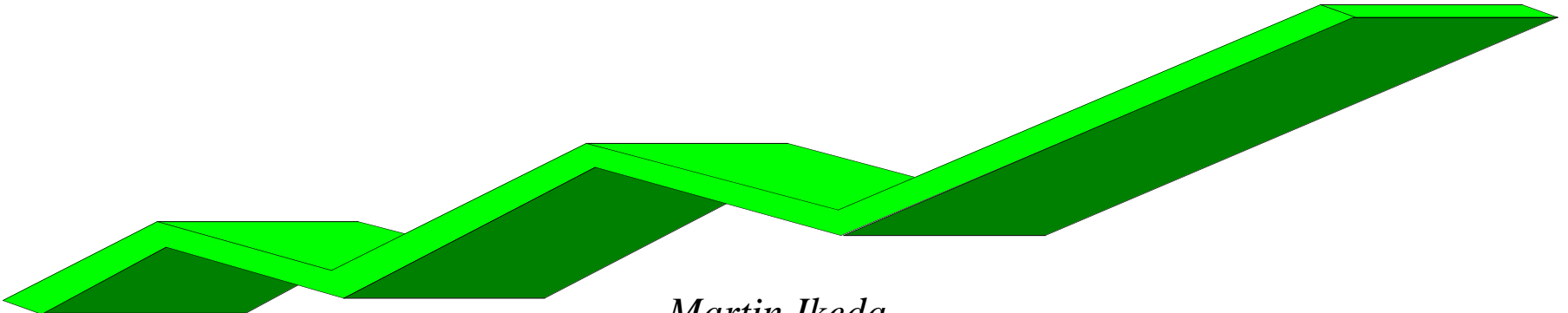


# Creating a road to literacy: Predicting ITBS reading proficiency levels using curriculum-based measures



*Martin Ikeda*

*Sue Dungan*

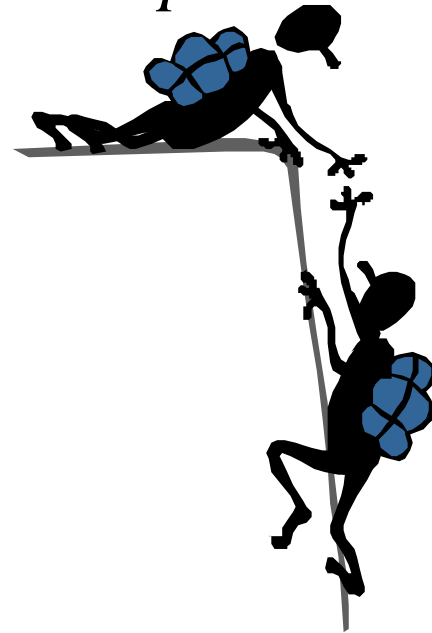
*Jerry Gruba*

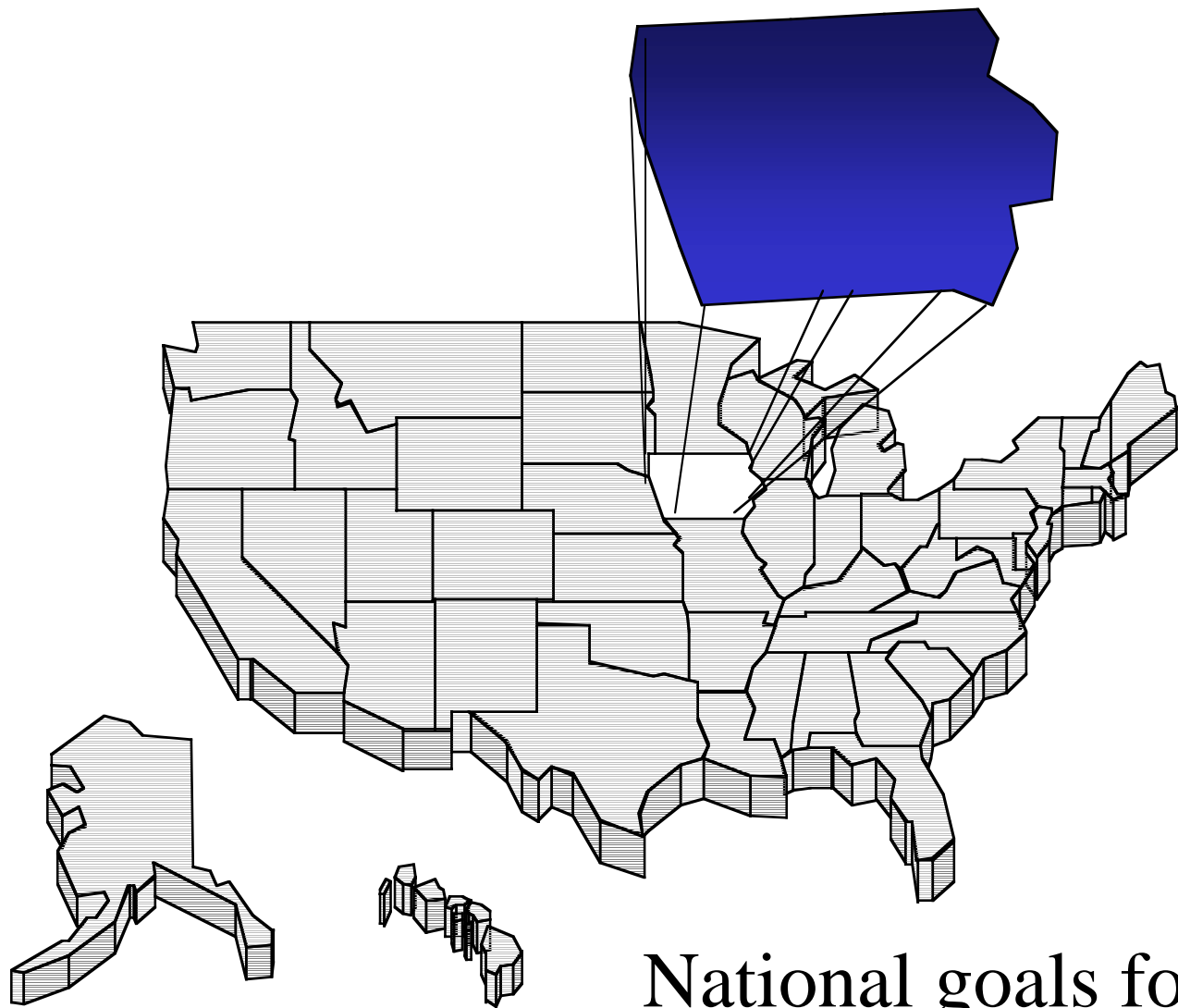
Contact at: [firstinitiallastname@aea11.k12.ia.us](mailto:firstinitiallastname@aea11.k12.ia.us)

(800) 362-2720

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*The presenters would like to acknowledge the contributions of Drs. Jerry Gruba and David Tilly in the concepts and content within this presentation. Barb Kruthoff, Brad Jermeland, Greg Robinson, and the administrative team of Perry Community Schools have helped us make CBMs more meaningful in school improvement planning and for teachers.*

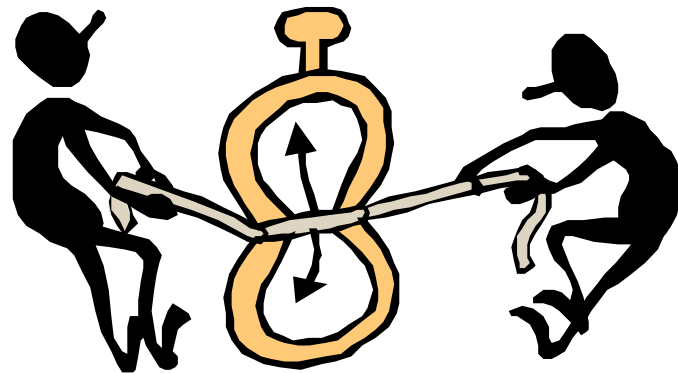




National goals for *all* students

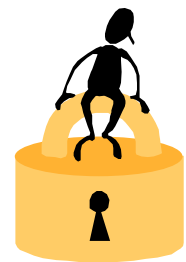
# High-stakes testing

- Takes too much time
- Teaching to the test
- Not valid for decisions they are used to make
- Often too late



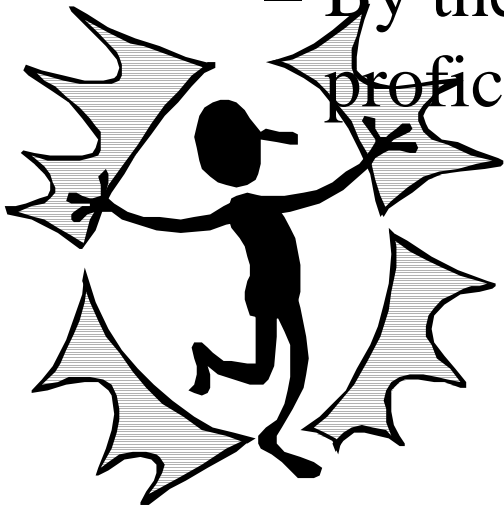
# Wouldn't it be nice if...

- We could predict which of the second grade students, today, were “on the road to literacy,” and which students need more instruction or support?
- We could predict which of the kindergartners, today, were “on the road to literacy,” and which students need more instruction or support?



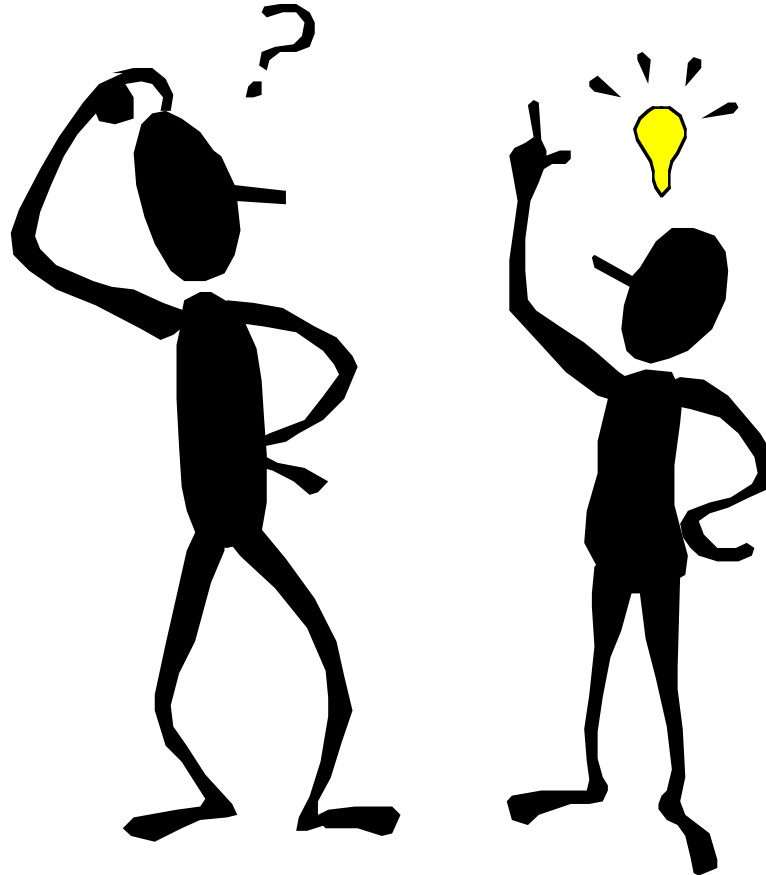
# Wouldn't it be nice if...

- For a given cohort of students, by the time they reach 12th grade, they all read proficiently?
  - By the time they reach 8th grade, they all read proficiently?
  - By the time they reach 4th grade, they all read proficiently?



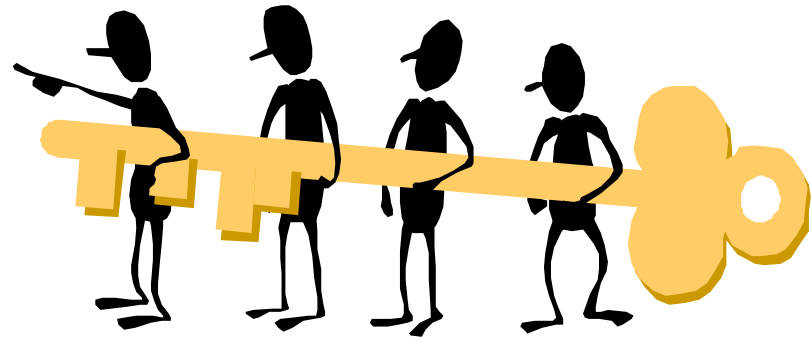
# Think about it

- What would classrooms be like...
  - Instruction
  - Engagement
  - Behavior



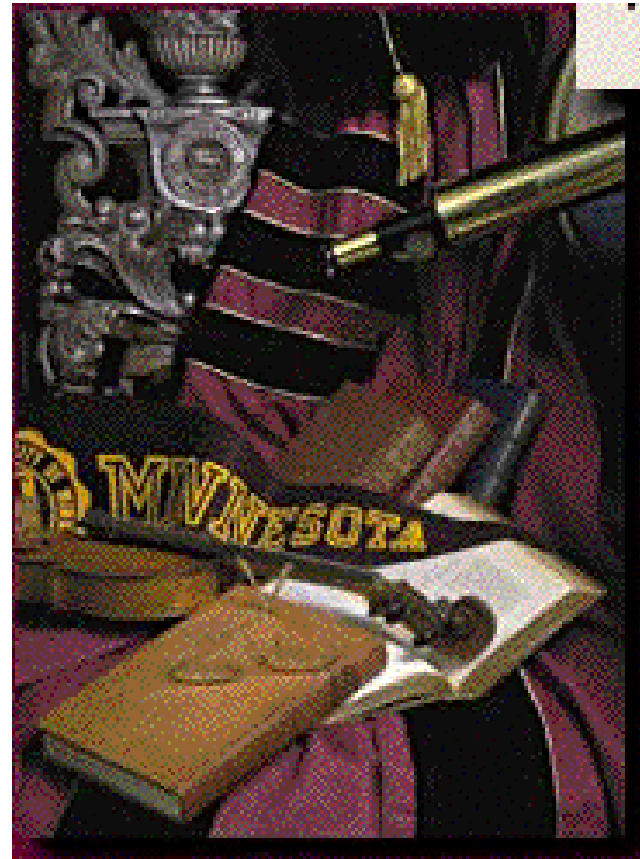
# By the end of this presentation you will:

- Have an understanding of what CBMs are
- Learn about the role of CBMs in school improvement
- Understand the strength of CBMs in making predictions about student performance
- See how teachers can use CBMs in decision making



# CBM History

- Developed Initially At University of Minnesota Institute for Research on Learning Disabilities (Late 70s, Early 80s)
- To Determine Effectiveness of Instruction for Students With Learning Disabilities
- An Extensive Research Program Was Conducted



# Dynamic Indicators of Basic Skills

- Skill Areas
  - Reading Fluency and Reading Comprehension
  - Math Computation
  - Math Application
  - Written Language
  - Early Literacy
- CBM is a General Outcome Measure



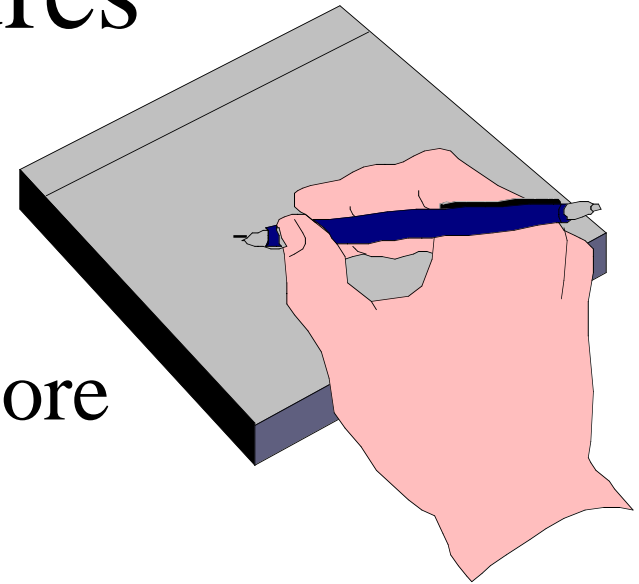
# Curriculum-Based Measurement (CBM)

- A systematic set of procedures used to measure student performance
- Can be used as a norm referenced test
- Can be used as a criterion referenced test



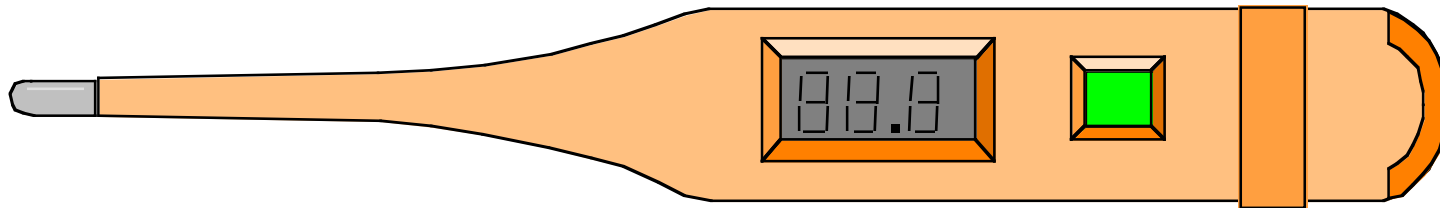
# Critical Features

- Brief
- Repeatable
- Easy to Administer and Score
- Technically Adequate
- Direct measures of performance
- Are sensitive to changes in performance due to instruction



# Consider a Thermometer

- Temperature (or blood pressure) is a general indicator of health.
  - When temperature is high, the physician asks questions to figure out what might be causing the fever.



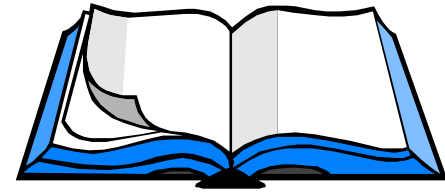
# CBM: The Educational Equivalent

- Many Components of a Good Reading

- Fluent Decoding

- Monitoring Meaning

- Linking New Knowledge with Prior Knowledge

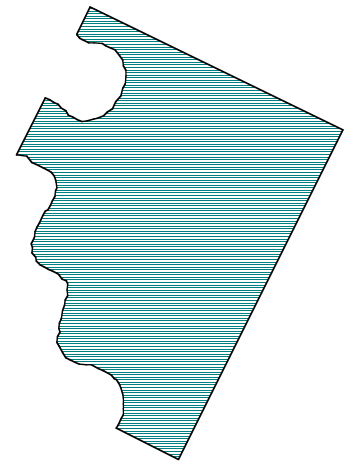


- General Outcome Measure for Reading

- Oral Reading Fluency

# How well do CBMs predict 4th grade proficiency?

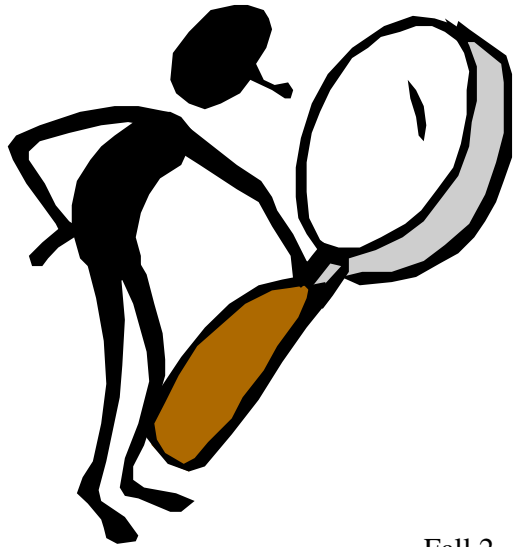
- Class of 2008
- 112 students from 3 school systems
  - 1 suburban
  - 1 rural
  - 1 emerging suburban
- Grade 4 ITBS Reading Comprehension NSS
- Fall and Spring fluency data in Grades 2 and 3, Fall of Grade 4



# Analysis

- Correlations: What is the relationship? In research, correlations of .40-.60 are considered good
- Discriminant function: Can we accurately sort students based on their CBM scores?
- Benchmarks: what would be the targets for teachers?





# Results

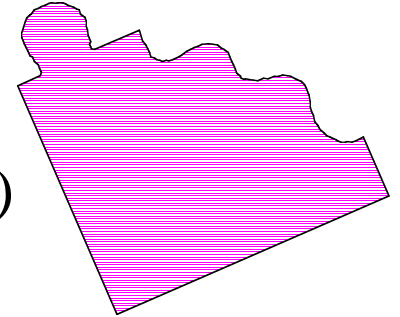
	Fall 2	Spring 2	Fall 3	Spring 3	Fall 4	ITBS NSS (Grade 4, Reading Comp.)
Fall 2	1.00					
Spring 2	.864*	1.00				
Fall 3	.830*	.919*	1.00			
Spring 3	.721*	.875*	.902*	1.00		
Fall 4	.828*	.876*	.875*	.855*	1.00	
ITBS NSS (Grade 4, Reading Comp.)	<b>.66*</b>	<b>.65*</b>	<b>.65*</b>	<b>.61*</b>	<b>.71*</b>	<b>1.00</b>

\* P < 0.01

As early as Fall of Grade 2, CBMs account for significant proportions of variance in the construct of Grade 4 Reading Comprehension

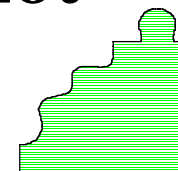


# Are these coefficients “good”?



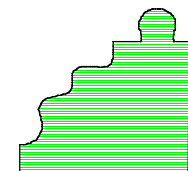
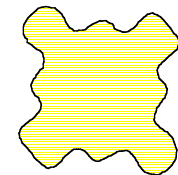
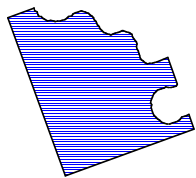
- CBMs-ITBS .61-.71 (predictive)
- ITBS-Cognitive Abilities Test .60-.70 (concurrent)
- ITED-ACT .86 (probably predictive)
- Stanford Achievement Test-9-Otis Lennon School Ability Test (coefficient not known)
- California Achievement Test-(coefficients not known)
- **CBMs have more validity data and as strong validity coefficients as published, group administered tests of achievement**

- CBMs-ITBS .61-.71 (predictive)
- Weschler Individual Achievement Test: .70-.80 with other individually administered tests
- Weschler Individual Achievement Test: .50-.70 with group administered tests
- Test of Reading Comprehension-3rd Edition with Cognitive Abilities Test and California Test of Basic Skills: .50-.65
- Stanford Diagnostic Reading Test-Otis Lennon School Ability Test: .60-.80; no data compared to other reading measures
- Woodcock-McGrew-Werder Mini-battery of achievement-Peabody Individual Achievement Test (grade 6, .82)
- Woodcock-McGrew-Werder-Wide Range Achievement Test-Revised (Grade 6, .64)
- For an individually administered test to a group administered test, **as good as if not better** than anything out there



Predictor	Standardized coefficient	Wilks's lambda	F (1, 110)
Fall 2	.19	.842	20.62**
Spring 2	-.38	.836	21.51**
Fall 3	-.36	.835	21.76**
Spring 3	.42	.813	25.22**
Fall 4	1.10	.750	36.63**

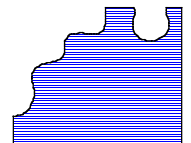
All variables contributed significantly to the discriminant function



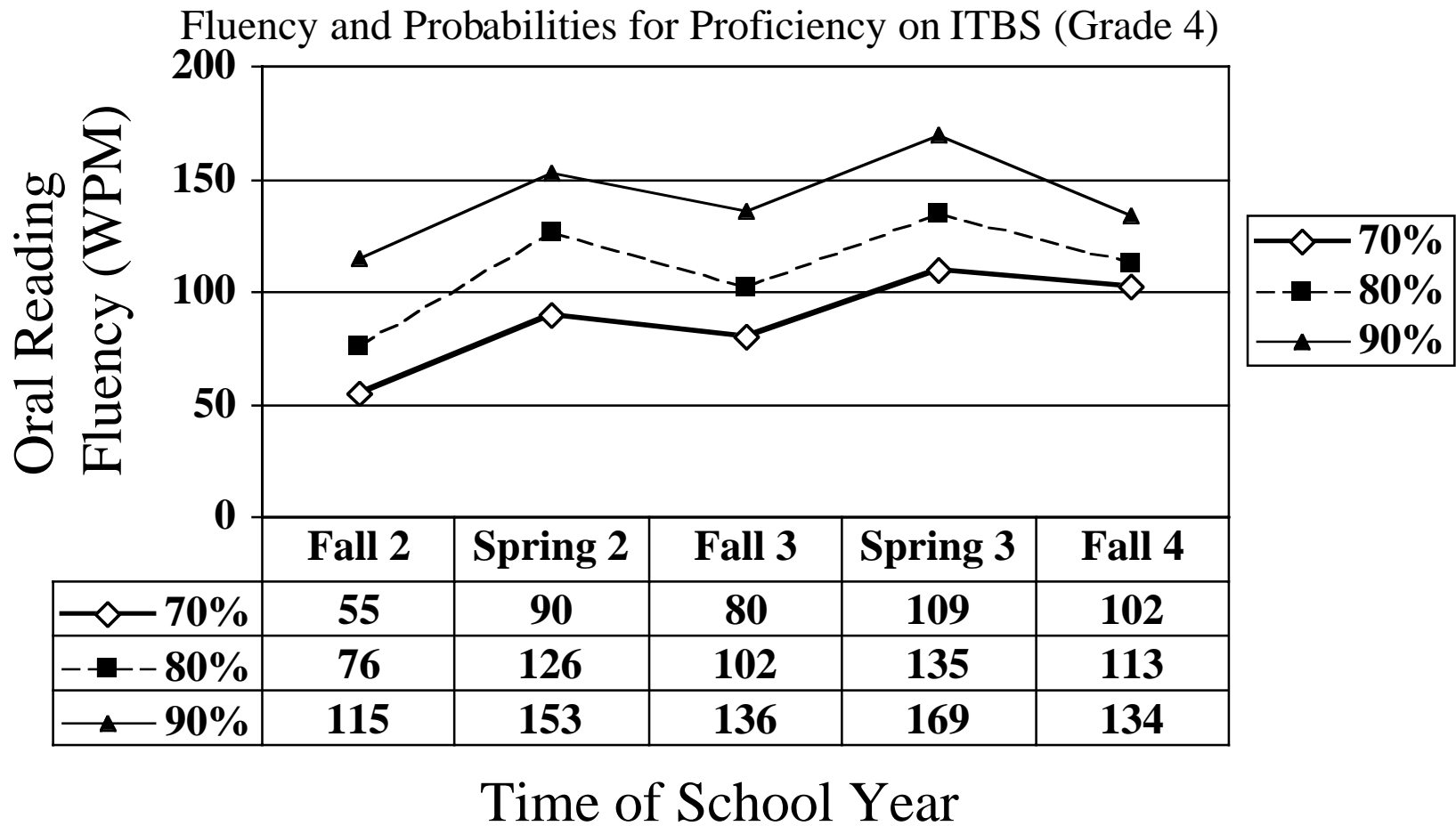
# ...but do CBMs successfully predict Proficiency on the ITBS?

		Predicted Membership	
		Not Proficient	Proficient
Obtained Membership	Not Proficient	(n=21) 66% correct	(n=11) 34% correct
	Proficient	(n=14) 18% correct	(n=66) 83% correct

Note: 78% of cases correctly classified using CBMs  
 A prediction scheme like this using chance levels = 58%



# I'm a teacher, how does this information help ME?



# With CBMs, in reading at least...



- ...teachers have targets
- Downward extension with DIBELS
- We will look at upward extension and follow this cohort
- Extend to other areas as well

So you've given me targets:

55 wpm Grade 2 Fall

72 wpm Grade 2 Winter

90 wpm Grade 2 Spring



- How can I use these targets to help my kids? Well.....

We know that:



– CBMs are sensitive to **growth** over time

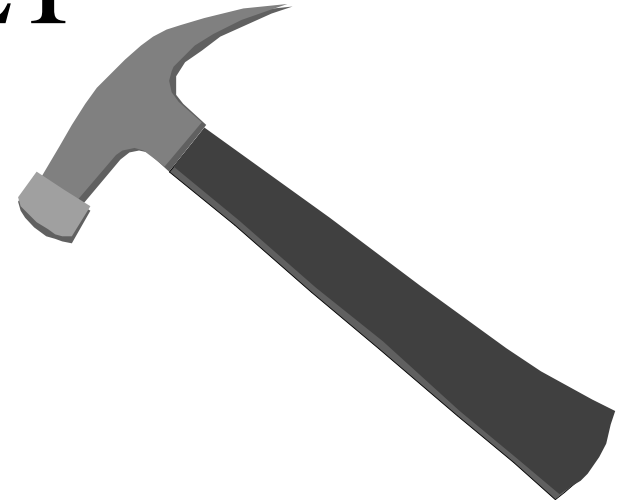


– CBMs can be given **repeatedly** and **efficiently**

**So....**

# CBM DATA WORKSHEET

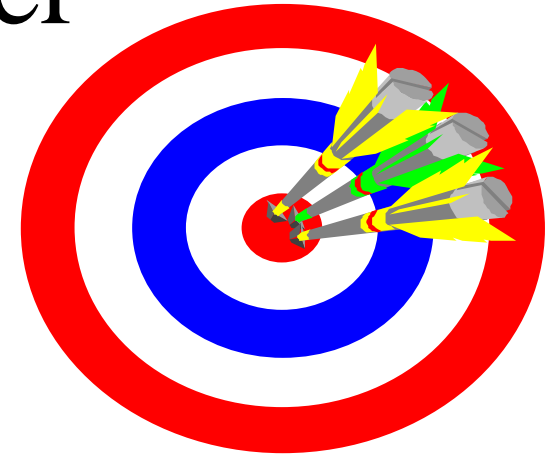
A tool to help you monitor individual student growth using CBM.



- Data Entry Page
- District/School/Classroom Rosters
- Summary Page

# Looking at the Class Roster

...consider the target of 55 wpm in the Fall of Grade 2...



- How many students missed the target?
- For those students, what kinds of support are currently in place?
- Are there mismatches between resources and student need?

# We also know...

## Reading Goals (words correct per week):

	<u>Realistic</u>	<u>Ambitious</u>
• Grade 1:	2	3
• Grade 2:	1.5	2
• Grade 3:	1	1.5
• Grade 4:	.85	1.1
• Grade 5:	.50	.80
• Grade 6:	.30	.65

(Lynn Fuchs, 1993)

So....after winter and spring, you can begin to look at:

- How many students between Fall and Winter of Grade 2 improved at least 1.5 words per week?

Or....

# What's different between John and Laura? Is it instruction? Support?



John Black:

68 wpm Winter benchmarking  
42 wpm change Fall to Winter  
3.5 wpm per week

Laura Jones:

68 wpm Winter benchmarking  
9 wpm change Fall to Winter  
0.8 wpm per week



# What are the implications for:

- Instructional procedures?
- Materials?
- Arrangements?
- Time Management?
- Frequency of Monitoring?
- Working with the BAT?

