Making Data Matter: Using CBM in the RTI Decision-Making Process

Erica Lembke
University of Missouri
lembkee@missouri.edu

OVERVIEW

- Basics steps in an RtI data-based decision making process
- Overview of CBM and its use in an RtI model
- CBM Tools and Resources
- Data decision-making rules in an RtI framework
- Use of problem-solving steps to examine individual, grade-level, class - and school wide data

BASICS STEPS IN AN RTI DATA-BASED DECISION MAKING PROCESS

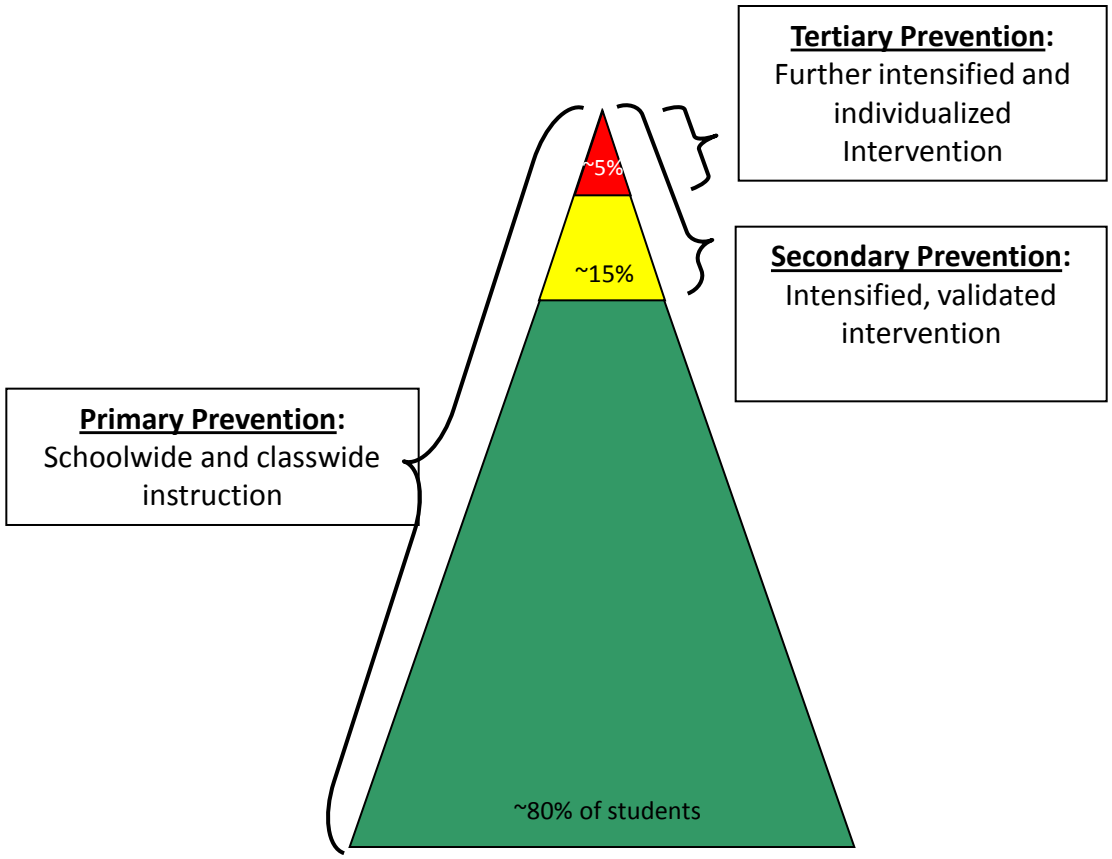
WHAT IS RESPONSE TO INTERVENTION?

- A model or structure that districts can adopt to enhance instructional effectiveness through the use of evidence-based practice and systematic data collection
- Under federal and state guidelines, districts can adopt an RtI model to aid in enhancing instruction and identifying students with learning disabilities

How is RTI being conceptualized in the schools?

- Tiered model of instruction and intervention
- Research-based core programs and interventions
- School-wide screening data to identify students at-risk
- Frequent progress monitoring to examine the on-going performance of students at-risk

EXAMPLE OF A TIERED MODEL OF INSTRUCTION



Basics of RTI—Primary Prevention (Tier 1)

- All students screened to determine which students are suspected to be at risk.
- Students suspected to be at risk remain in primary prevention, with progress monitoring.
- Progress monitoring
  - Disconfirms risk. These responsive students remain in primary prevention OR
  - Confirms risk. These unresponsive students move to secondary prevention.

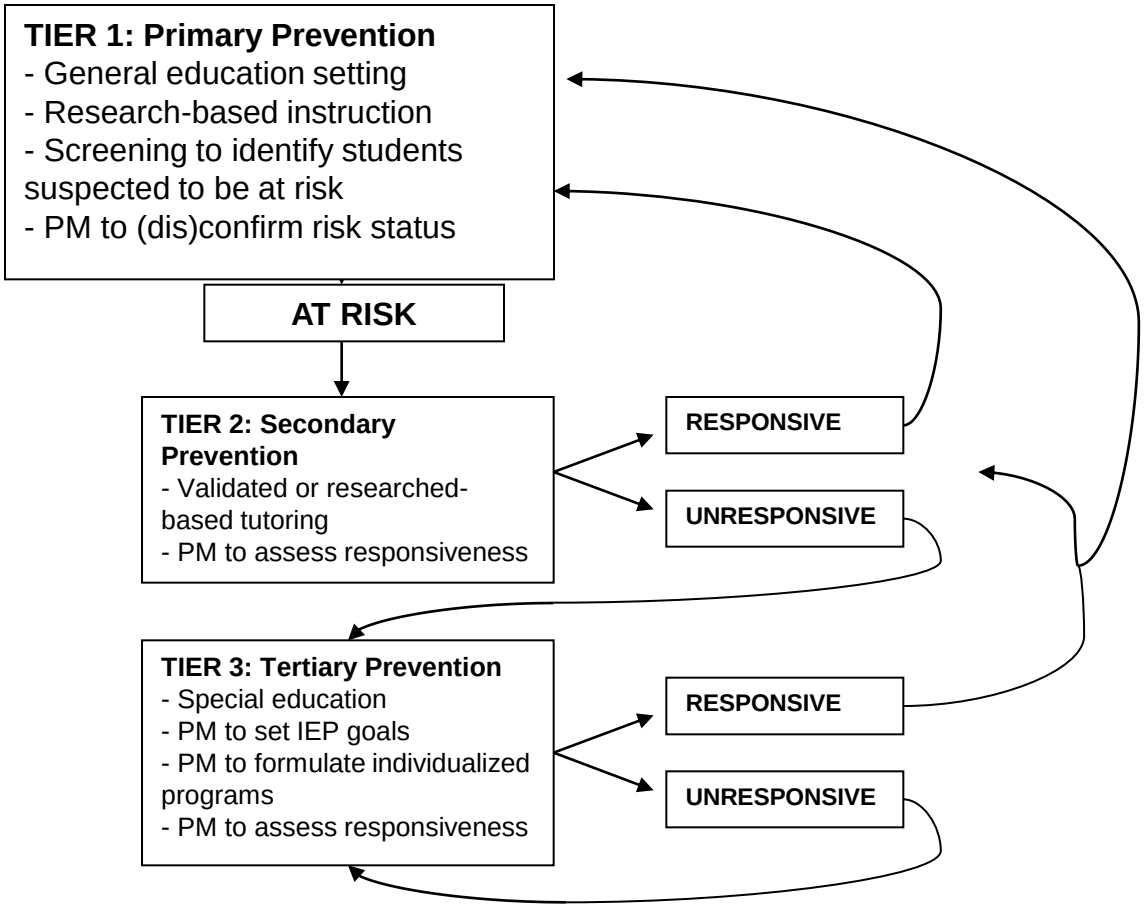
Basics of RTI—Secondary Prevention (Tier 2)

- Research-based tutoring
- Provided in small groups either by the general education teacher or specialists
- With monthly or weekly progress monitoring
- At end of tutoring trial, progress monitoring indicates students were
  - Responsive to Tier 2 tutoring. These responsive students return to primary prevention, but progress monitoring continues OR
  - Unresponsive to Tier 2 tutoring. These unresponsive students move to tertiary prevention (could be special education).

BASICS OF RTI—TERTIARY PREVENTION (TIER 3)

- More intensive intervention OR
  Special education services
- With weekly progress monitoring
- Progress monitoring is used to
  - Design Individualized instructional programs OR
  - Set Individualized education program (IEP) goals
  - Monitor student response
    - When progress monitoring indicates the student achieves benchmark performance, in some districts, the student exits Tier 3 (i.e., returns to primary or secondary prevention), with ongoing progress monitoring.

THREE TIERS OF RTI



Critical Elements That Districts Need in Place to Effectively Implement RTI

1. Well-functioning, school-based problem-solving teams
2. School wide screening and progress monitoring system
   - Needs to be technically adequate (Curriculum-Based Measurement (CBM) is one example)
3. Systematic analysis of school-wide data
   - Utilize decision-making rules
4. Examine current core academic programs
   - Are these programs meeting the needs of the majority of the students?

Critical Elements that Districts Need in Place to Effectively Implement RTI, Cont.

5. Identify evidence-based interventions for Tiers 2 and 3 and a schedule for implementation of the tiered interventions
   a) Determine how fidelity of treatment for Tiers 1-3 will be assessed
6. Monitor the progress of students in Tiers 2 and 3 on a frequent basis
   - Setting goals
   - Collecting data
   - Implementing data decision rules
   - Making changes in instruction

HOW DO DISTRICTS GET STARTED?

1) Assess current strengths and needs
   - Use an RtI checklist
   - Determine what critical elements need to be introduced or enhanced
   - Determine what critical elements are already in place
2) Create an action plan for what district goals are for this year, next year, and 3 years from now
   - Goals, timeline, resources necessary, who is responsible
3) Continue to check the NY state RtI link for up-to-date resources: www.nysrti.org

Assess your current strengths and weaknesses

- Use RTI fidelity sheet and/ or goal setting sheet
- If you're not sure at this point, make a note to yourself to come back to the point later.

Overview of CBM and its use in an RTI model

WHAT SYSTEM CAN BE USED TO MONITOR THE EFFECTIVENESS OF RTI?

- Curriculum-Based Measurement (CBM)—use for screening and progress monitoring
  - CBM provides an easy and quick method for gathering student progress
  - Teachers can analyze student scores and adjust student goals and instructional programs
  - Student data can be compared to teacher's classroom or school district data

RESEARCH SUPPORT

- Over 30 years of research support the use of CBM to…
  - Increase student achievement (Stecker & Fuchs, 2005)
  - Make predictions about who will succeed on high-stakes assessments (Good, Simmons, & Kameenui, 2001)
  - Help teachers identify when instructional changes are needed (Fuchs, Fuchs, & Hamlett, 1993)
  - Develop classroom, school, or district norms (Shinn, 2002)
  - Increase ease of communication with parents, teachers, students, and others (Shinn, Habedank, & Good, 1993)

USING CBM WITHIN A RTI FRAMEWORK

Tier I

Use CBM within a school-wide screening system, monitoring all students' performance 3-4 times per year

Tier II

Use CBM to monitor the performance of the students that need strategic intervention on a monthly basis

Tier III

Use CBM to monitor the performance of the students that need the most intensive intervention on a weekly basis

Screening and Progress Monitoring

- Screening, or benchmarking, is an excellent method to identify students early who might be at-risk for academic failure
- Following screening, students that are at-risk are monitored on an on-going basis to track their progress
- School-wide systems of screening and progress monitoring are prevalent in reading (e.g., DIBELS, Aimsweb)
- How are screening and progress monitoring implemented in an RTI system?

MOST PROGRESS MONITORING: MASTERY MEASUREMENT

CBM is **NOT**
Mastery Measurement

Mastery Measurement Tracks Mastery of Short-Term Instructional Objectives

To implement Mastery Measurement, the teacher:

- Determines the sequence of skills in an instructional hierarchy
- For each skill, develops a criterion-referenced test

Sampling performance on year-long curriculum for each curriculum-based measurement…

- Avoids the need to specify a skills hierarchy
- Avoids single-skill tests
- Automatically assesses maintenance/generalization
- Permits standardized procedures for sampling the curriculum, with known reliability and validity
- SO THAT: CBM scores relate well to performance on high-stakes tests

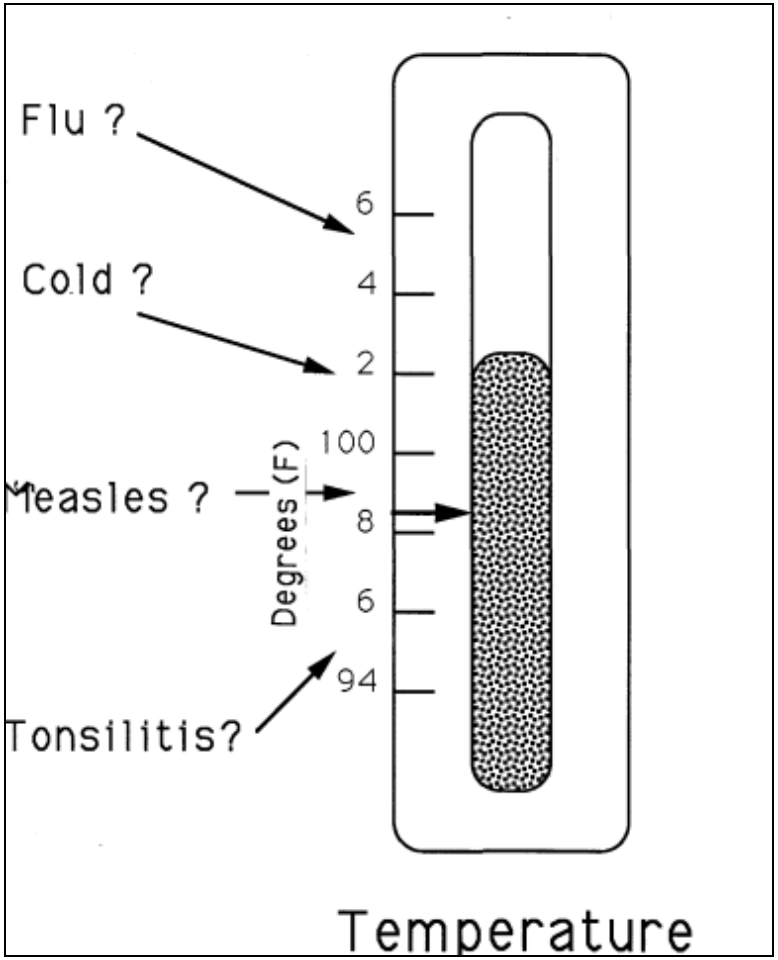
CURRICULUM-BASED MEASUREMENT

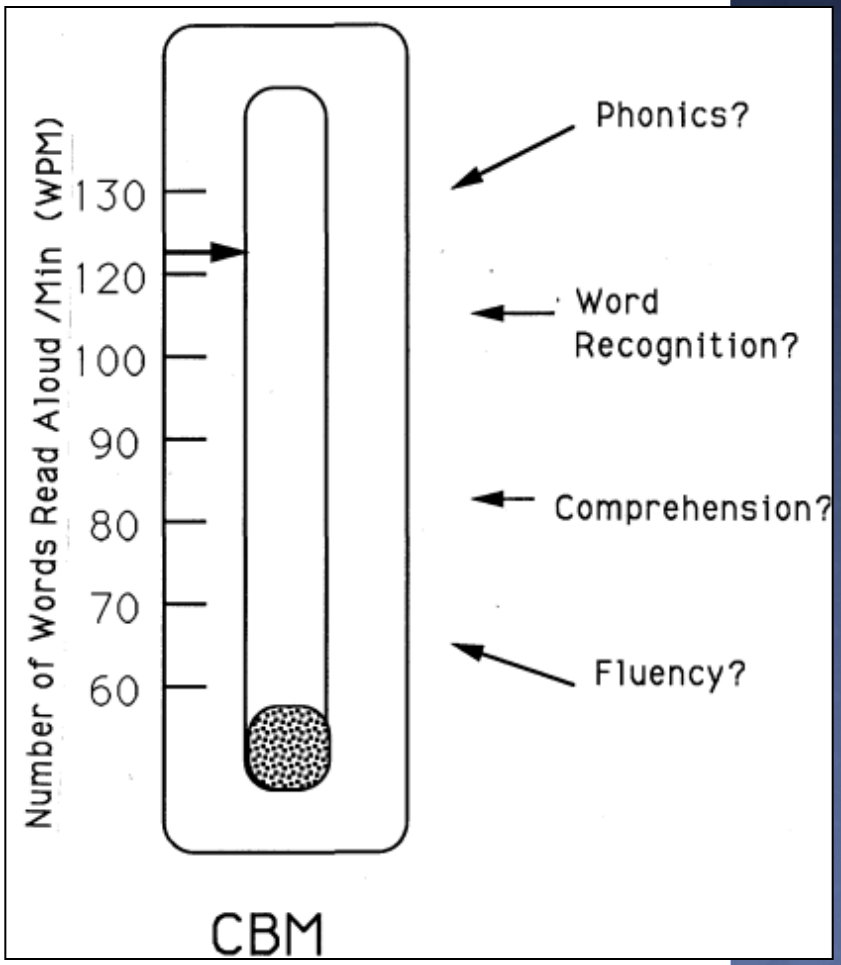
- As an example, in reading
  - Not interested in making kids read faster
  - Interested in kids becoming better readers
  - The CBM score is an OVERALL INDICATOR of reading competence
  - Students who score high on CBMs are better:
    - Decoders
    - At sight vocabulary
    - Comprehenders
  - Correlates highly with high-stakes tests

OVERALL INDICATOR

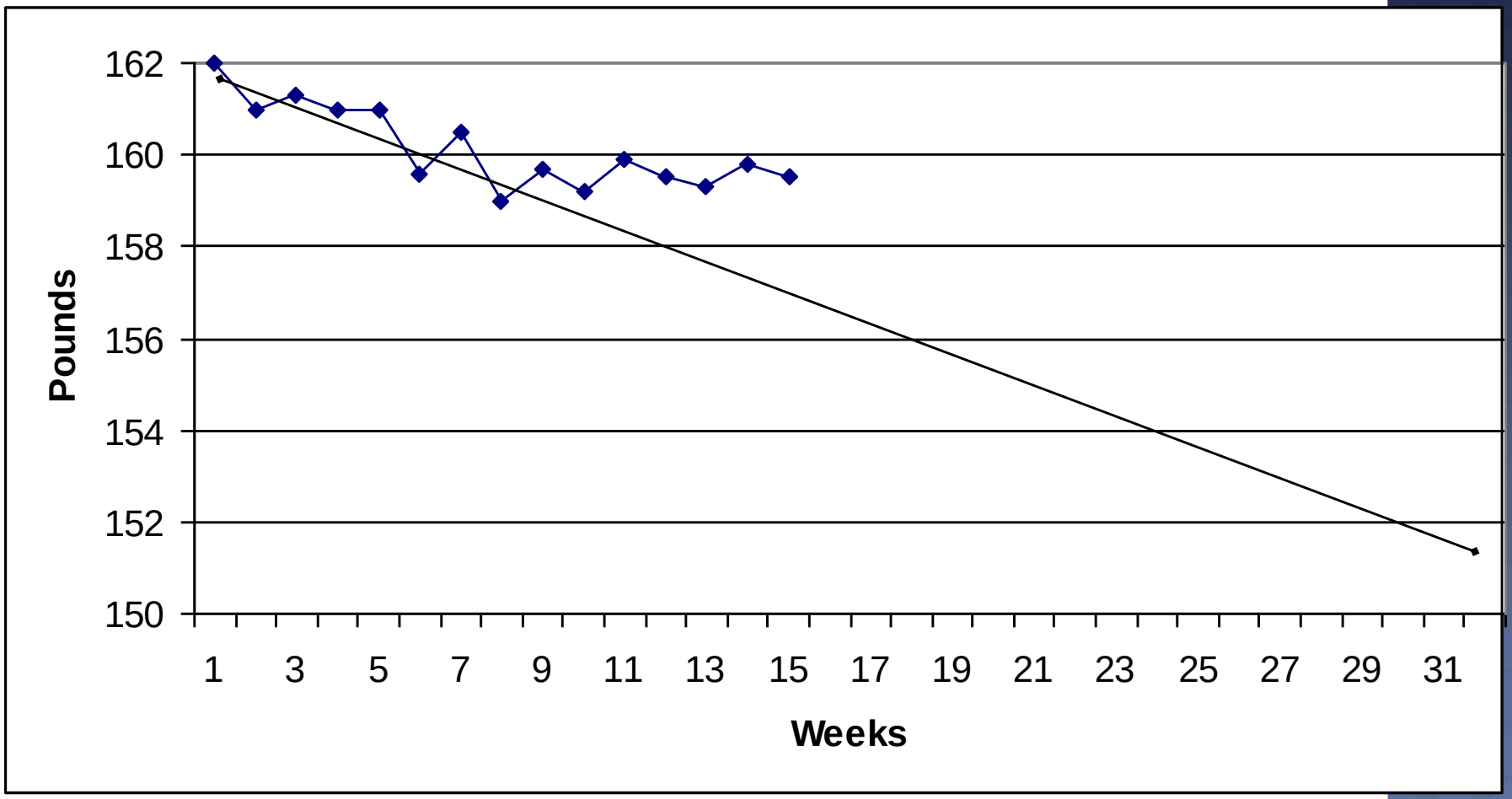
- Data from CBM measures serve as indicators of academic proficiency in subject areas such as math and reading, just like…
  - Temperature in degrees serves as an indicator of overall wellness
  - Weight in pounds serves as an indicator of overall health
  - A litmus test serves as an indicator of a solution's acidity

CBM: AN INDEX OF ACADEMIC HEALTH

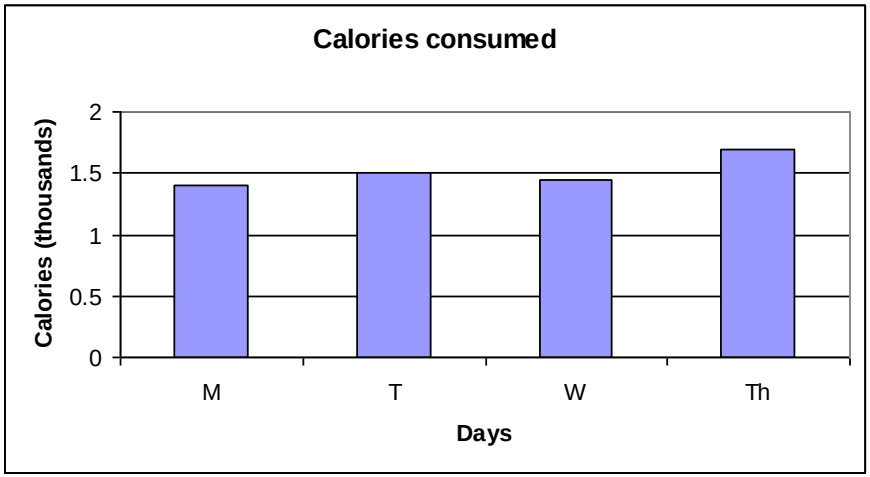


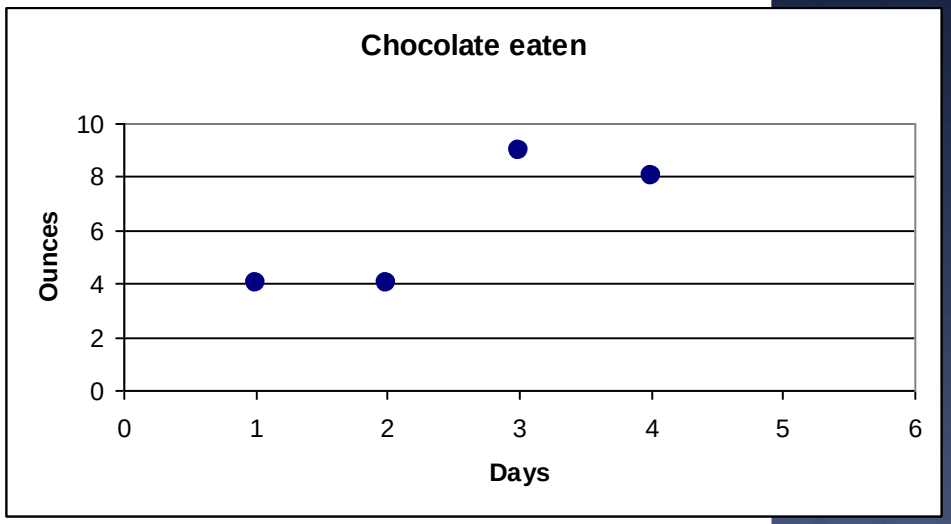


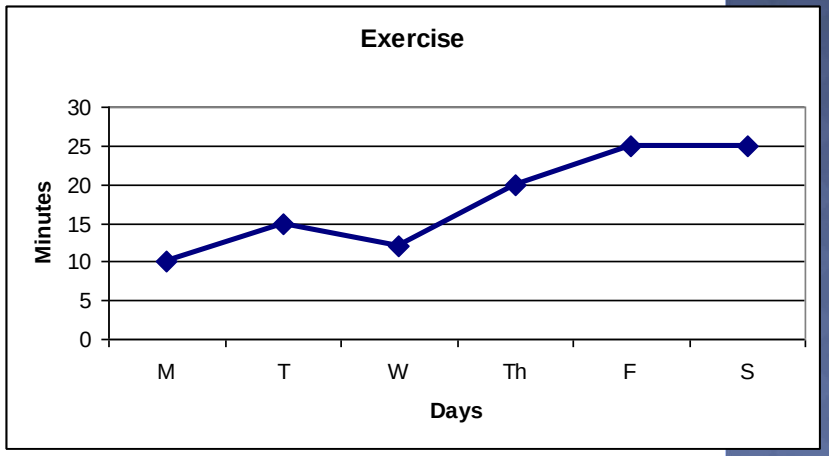
WEIGHT LOSS GRAPH



INTERVENTIONS







How do temperature and weight and a litmus test relate to monitoring academic skills?

- We want a graph of “educational health” or “educational strength.”
- What do we measure?

MEASURING EDUCATIONAL HEALTH

- We want to measure "educational health or strength" using something that is:
  - Inexpensive
  - Easy
  - Time efficient
  - Sensitive to change
  - Easy to understand
  - An INDICATOR of educational health
- The measures do tell us if our teaching is effective. The measures do not tell us what to teach.

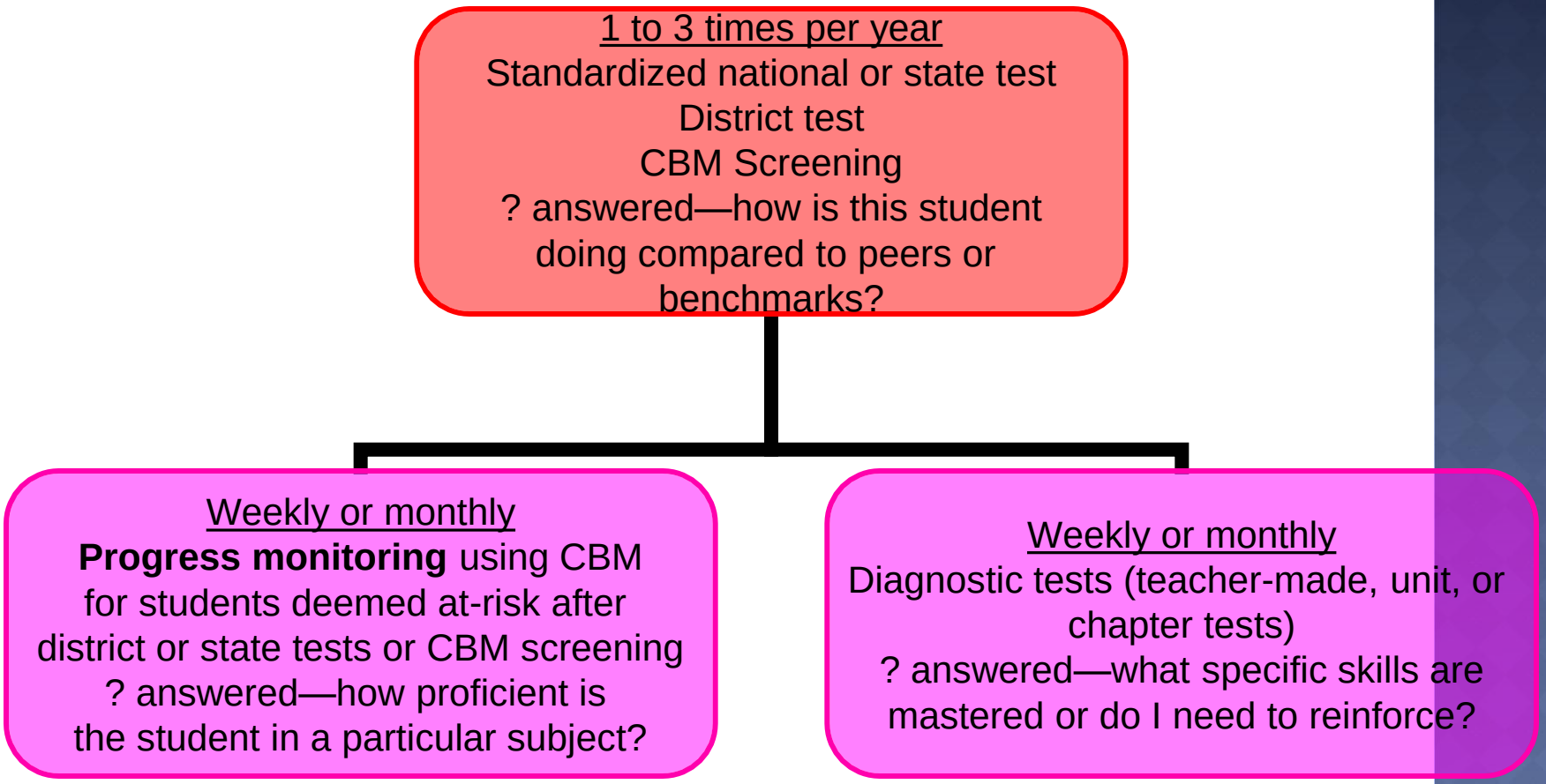
WHAT ARE COMMON ASSESSMENTS THAT A DISTRICT MIGHT BE UTILIZING?

- Different types of assessment and their purposes:
  - Screening or benchmarking—common assessments given to the entire school to identify students that might be at-risk (i.e., CBM screening)
  - Standardized tests—norm-referenced tests that are given once a year to compare a student to a national or state norm
  - Diagnostic tests—commercially available or teacher-made tests that provide information on what specific skills a student is proficient in and what skills the student lacks and what skills the teacher might need to re-teach (i.e., DRA, Terra Nova, chapter or unit tests, teacher-made checklist, running record)
  - Progress monitoring-- Used on an on-going basis for monitoring students' overall proficiency in a subject (i.e., CBM progress monitoring materials)

How Assessments Work Together…

- Norm-referenced tests
  - Keep teachers and schools and districts in touch with how their students are doing on a state and national basis
- CBM
  - Provides a technically adequate tool for determining which students are in need of intervention (can also compare to national benchmarks)
  - Provides a technically adequate tool for determining whether instruction and intervention are effective for students
- Quizzes, unit tests, teacher-made tests
  - Provides diagnostic information regarding what skills need to be taught or re-taught

WHERE DOES PROGRESS MONITORING FIT?



CAUTION

- Do not let data from CBM measures drive the specific content you teach.
- CBM measures are meant to give you a sense of proficiency in reading. They are overall indicators, general outcome measures.
- Just because a student is low on ORF does not mean that he/she is struggling with fluency only.

CBM TOOLS AND RESOURCES

MEASURES USED FOR MONITORING

Reading-CBM

- Early Literacy
  - Letter Naming, Letter Sound, Phoneme Segmentation, and Nonsense Word Fluency Measures
- Spanish Early Literacy Measures
- Oral Reading Fluency
- Spanish Oral Reading Fluency
- Maze

Math—CBM

- Early Numeracy
  - Oral Counting, Missing Number, Number Identification, and Quantity Discrimination
- Math Computation
- Math Facts
- Math Concepts & Applications

Spelling-CBM

- Standard Spelling Word Lists

Written Expression-CBM

- Story Starters

USING THE CBM MEASURES AND PROCESS WITH LEP/ELL STUDENTS

- Choosing measures
- Monitoring data
- Tiered intervention
- Intervention choices

ADMINISTRATION

- These measures are standardized and we can use nationwide norms because…
  - We are consistent in how we administer the probes
  - We are consistent in how we score the probes
  - The probes that we use have documented reliability and validity

Common Commercially Available Programs

- Aimsweb—aimsweb.com
- Dibels—dibels.uoregon.edu
- Edcheckup—edcheckup.com
- Yearly Progress Pro--http://www2.ctb.com/products_services/ypp/index.html
- Wireless Generation—wirelessgeneration.com

COMMON CBM READING MEASURES

- Letter-Naming Fluency
- Letter-Sound Fluency
- Nonsense Word Fluency
- Phoneme Segmentation Fluency
- Word Identification Fluency
- Oral Reading Fluency
- Maze Fluency

Type of measure and time necessary for administration varies, but most measures are administered for 1 minute.

Single-skill vs. CBM multidimensional measures

- Single-skill measures
  - Focus on one type of skill
  - Static scores correlate well with some criterion measures
  - Few studies that document use of single-skill measures for modeling global learning over time; consequently, growth over time may not correspond well with overall learning of the broader domain
  - Instructional utility may be overly narrow across the long term

Single-Skill vs. CBM Multidimensional Measures

- Multidimensional Measures (CBM)
  - Oral reading fluency and maze fluency--student must integrate many reading skills in order to perform well on task
  - Scores and slopes correlate well with multiple global measures of reading competence
  - Instructional utility is broad based

LETTER-NAMING FLUENCY

- Single-skill measure for kindergarten students
- Data graphed: Number of letters named correctly in 1 minute

t	S	R
u	b	C
W	p	m
e	A	q
x	s	y
P	L	o

LETTER-SOUND FLUENCY

- Single-skill measure used for kindergarten students
- Data graphed: Number of letter sounds produced correctly in 1 minute

t	S	R
u	b	C
W	p	m
e	A	q
x	s	y
P	L	o

NONSENSE WORD FLUENCY

- Single-skill measure used for kindergarten and first-grade students (vc or cvc blending)
- Data graphed: Number of sounds produced correctly in 1 minute or number of words read correctly(Student may say individual sounds or say the entire word; however, credit is awarded for each sound produced and each word)

tov	sut	rom
ud	bof	coz
wid	peb	mot
eb	ak	jeb
pex	sim	yaz
pim	lut	ob

CBM PHONEME SEGMENTATION FLUENCY (PSF)

- For students at the pre-reading stage
- Student presented with a word with 3 or 4 phonemes
- Student verbally produces individual phonemes for 1 minute
- Teacher marks errors on PSF Teacher Score Sheet

CBM PHONEME SEGMENTATION FLUENCY (PSF)

- PSF Teacher Score Sheet
- For each correct phoneme, 1 point is awarded

Progress Monitoring 2
Phoneme Segmentation Fluency

none	/n/ /u/ /n/	floor	/f/ /l/ /or/	____/6
cook	/k/ /uu/ /k/	showed	/sh/ /oa/ /d/	____/6
tree	/t/ /r/ /ea/	few	/f/ /y/ /oo/	____/6
truth	/t/ /r/ /oo/ /th/	feels	/f/ /ea/ /l/ /z/	____/8
homes	/h/ /oa/ /m/ /z/	dog	/d/ /o/ /g/	____/7
named	/n/ /ai/ /m/ /d/	sick	/s/ /i/ /k/	____/7
shapes	/sh/ /ai/ /p/ /s/	hit	/h/ /i/ /t/	____/7
can	/k/ /a/ /n/	clear	/k/ /l/ /ea/ /r/	____/7
leaves	/l/ /ea/ /v/ /z/	guide	/g/ /ie/ /d/	____/7
shine	/sh/ /ie/ /n/	wash	/w/ /o/ /sh/	____/6
heads	/h/ /e/ /d/ /z/	noon	/n/ /oo/ /n/	____/7
won	/w/ /u/ /n/	picked	/p/ /i/ /k/ /t/	____/7

Total:____

Error Pattern:

(c) Good & Kaminski, 2001 Page 4

CBM PHONEME SEGMENTATION FLUENCY (PSF)

- Eddie's CBM PSF
- Correct sound segments are underlined
- Incorrect sound segments are marked with a slash (/)
- Eddie's score = 44

Eddie

Progress Monitoring 2
Phoneme Segmentation Fluency

none	/n/ /u/ /n/	floor	/f/ /l/ /or/	6	/6
cook	/k/ /uu/ /k/	showed	/sh/ /oa/ /d/	6	/6
tree	/t/ /r/ /ea/	few	/f/ /y/ /oo/	4	/6
truth	/t/ /r/ /oo/ /th/	feels	/f/ /ea/ /l/ /z/	4	/8
homes	/h/ /oa/ /m/ /z/	dog	/d/ /o/ /g/	5	/7
named	/n/ /ai/ /m/ /d/	sick	/s/ /i/ /k/	7	/7
shapes	/sh/ /ai/ /p/ /s/	hit	/h/ /i/ /t/	7	/7
can	/k/ /a/ /n/	clear	/k/ /l/ /ea/ /r/	5	/7
leaves	/l/ /ea/ /v/ /z/	guide	/g/ /ie/ /d/		/7
shine	/sh/ /ie/ /n/	wash	/w/ /o/ /sh/		/6
heads	/h/ /e/ /d/ /z/	noon	/n/ /oo/ /n/		/7
won	/w/ /u/ /n/	picked	/p/ /i/ /k/ /t/		/7

Total: 44

Error Pattern:

CBM ORAL READING FLUENCY

- For students in grades 1-8
- Can be used as a measure of performance (but not progress) at the secondary level
- Student reads grade-appropriate passage for 1 minute from ORF Student copy
- Teacher marks errors on ORF Teacher copy

CBM Oral Reading Fluency (ORF)

- Scoring guidelines:
  - Repetitions, self-corrections, insertions, and dialectical differences are all scored as CORRECT
  - Mispronunciations, word substitutions, omitted words, hesitations (word not said within 3 seconds), and reversals are all scored as ERRORS

How to identify the level of material for monitoring progress, oral reading fluency

- To find the appropriate CBM level:
  - Determine grade level text for student
  - Administer 3 CBM Reading passages
    - If student reads 10-50 words correct in 1 minute but with less than 85-90% accuracy, move to next lower CBM level
    - If student reads more than 50 words correct in 1 minute, move to the highest level of text where he/she reads between 10-50 words correct, with at least 85-90% accuracy

CBM ORAL READING FLUENCY (ORF)

- Illustration of a teacher administering a ORF probe to a student
- This is the first page of the Teacher Copy

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
there. You haven't cleaned it in a decade." 107
There was nothing Norman could say after his mom had made up her mind. He 122
was going to have to clean out his closet. 131
The only problem was that Norman couldn't even open his closet door. He had it 146
held closed with a large wooden block. There was so much junk in there that it 162
wouldn't stay shut on its own. To push aside the wooden block and open the door 178
would mean doom for Norman. He'd be crushed by falling trash as soon as he 193
turned the knob. He decided that he would only pretend to clean his closet, but his 209
mother came into his bedroom. 214
"Well," she said, placing her hands on her hips, "let's see you get to work." 229
Norman put both hands on the doorknob and tugged. The entire doorframe gave 242
a mighty CREAK. There was a loud rumble as Norman was pushed back by the 257
wave of forgotten junk he'd jammed into his closet. When the loud noise faded, 271
Norman was lying on his back under a mountain of broken toys, dirty socks, and 286
books. With a groan, he lifted himself to his feet. 296
There was an awful smell wafting from somewhere inside. Norman looked into 308
the depths of his closet. It was dark, dreary, and mysterious. Anything—absolutely 321
anything—could be hiding in there. Maybe trolls, ghouls, or gnomes, Norman 333
thought. This job could be an adventure! Pushing up his sleeves, Norman got to 347
work. 348

CBM ORAL READING FLUENCY (ORF)

- Illustration of a teacher administering a ORF probe to a student
- This is the first page of the Student Copy

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.

CBM ORAL READING FLUENCY (ORF)

- Illustration of a teacher administering an ORF probe to a student

- Student errors

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 26
couch. Just as he switched on the television, the power went out. 38
Watching a blank television was not something Norman wanted to do. 49
He looked around at the four dismal walls 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 83
closet. Your closet is a disaster, Norman. I'm actually frightened…

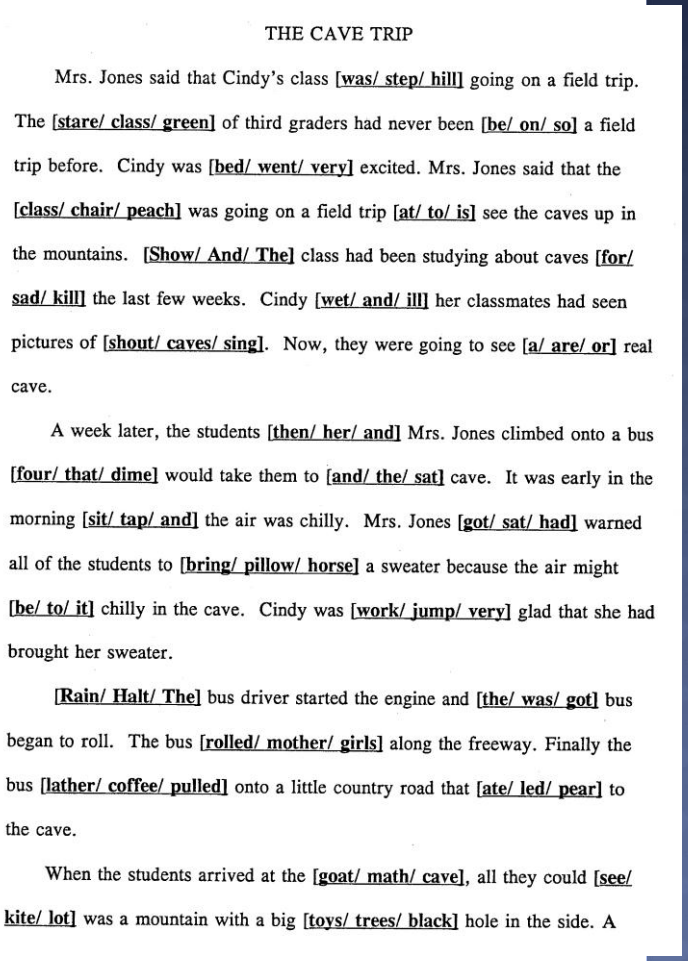
80 words attempted in 1 minute, 7 errors = 73 words read correctly

CBM MAZE FLUENCY

- For students in grades 1-12
- Administered to a group of students at one time
- Students read passage and circle correct word for each blank
- Tests last for 1 to 3 minutes
- Teacher grades each test later

CBM MAZE FLUENCY

- Maze Student copy
- Students receive 1 point for each correct answer
- With some programs, scoring is discontinued if 3 consecutive errors are made



THE CAVE TRIP

Mrs. Jones said that Cindy's class [was/ step/ hill] going on a field trip. The [stare/ class/ green] of third graders had never been [be/ on/ so] a field trip before. Cindy was [bed/ went/ very] excited. Mrs. Jones said that the [class/ chair/ peach] was going on a field trip [at/ to/ is] see the caves up in the mountains. [Show/ And/ The] class had been studying about caves [for/ sad/ kill] the last few weeks. Cindy [wet/ and/ ill] her classmates had seen pictures of [shout/ caves/ sing]. Now, they were going to see [a/ are/ or] real cave.

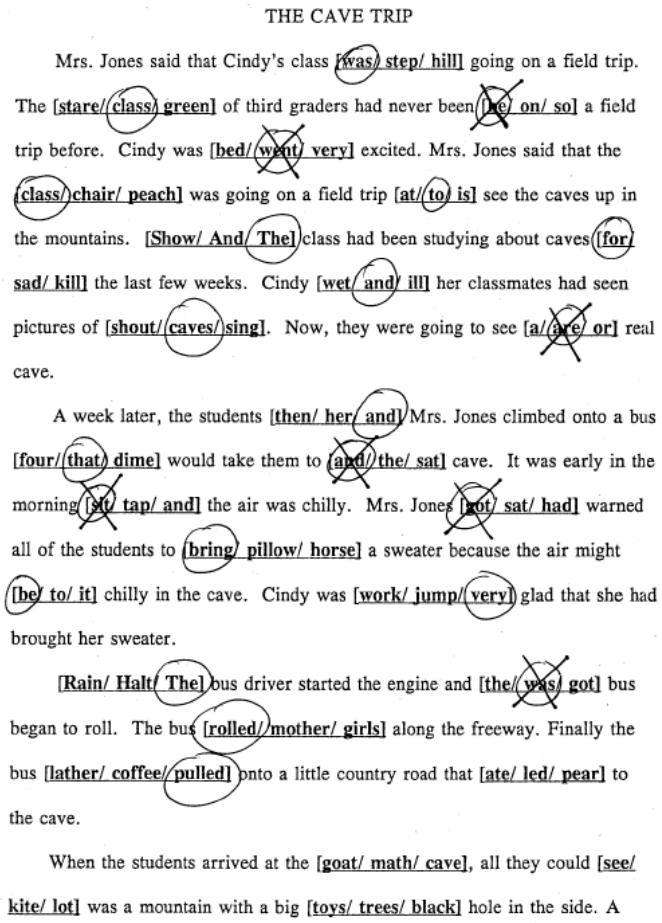
A week later, the students [then/ her/ and] Mrs. Jones climbed onto a bus [four/ that/ dime] would take them to [and/ the/ sat] cave. It was early in the morning [sit/ tap/ and] the air was chilly. Mrs. Jones [got/ sat/ had] warned all of the students to [bring/ pillow/ horse] a sweater because the air might [be/ to/ it] chilly in the cave. Cindy was [work/ jump/ very] glad that she had brought her sweater.

[Rain/ Halt/ The] bus driver started the engine and [the/ was/ got] bus began to roll. The bus [rolled/ mother/ girls] along the freeway. Finally the bus [lather/ coffee/ pulled] onto a little country road that [ate/ led/ pear] to the cave.

When the students arrived at the [goat/ math/ cave], all they could [see/ kite/ lot] was a mountain with a big [toys/ trees/ black] hole in the side. A

CBM MAZE FLUENCY

- Juan's CBM Maze
- 10 correct answers before he made 3 consecutive mistakes
- Juan's score = 10



THE CAVE TRIP

Mrs. Jones said that Cindy's class [was/ step/ hill] going on a field trip. The [stare/ class/ green] of third graders had never been [he/ on/ so] a field trip before. Cindy was [bed/ went/ very] excited. Mrs. Jones said that the [class/ chair/ peach] was going on a field trip [at/ to/ is] see the caves up in the mountains. [Show/ And/ The] class had been studying about caves [for/ sad/ kill] the last few weeks. Cindy [wet/ and/ ill] her classmates had seen pictures of [shout/ caves/ sing]. Now, they were going to see [a/ are/ or] real cave.

A week later, the students [then/ her/ and] Mrs. Jones climbed onto a bus [four/ that/ dime] would take them to [and/ the/ sat] cave. It was early in the morning [sit/ tap/ and] the air was chilly. Mrs. Jones [got/ sat/ had] warned all of the students to [bring/ pillow/ horse] a sweater because the air might [be/ to/ it] chilly in the cave. Cindy was [work/ jump/ very] glad that she had brought her sweater.

[Rain/ Halt/ The] bus driver started the engine and [the/ was/ got] bus began to roll. The bus [rolled/ mother/ girls] along the freeway. Finally the bus [lather/ coffee/ pulled] onto a little country road that [ate/ led/ pear] to the cave.

When the students arrived at the [goat/ math/ cave], all they could [see/ kite/ lot] was a mountain with a big [toys/ trees/ black] hole in the side. A

CBM MAZE FLUENCY

- Let's practice
- This is the first page of the CBM Maze test "Summer Camp."

SUMMER CAMP

Stuart had nice parents. They did not embarrass him in [glad/ front/ yellow] of his friends. His father did [not/ ant/ soft] yell at him during his baseball [center/ games/ lines], and his mother never kissed him [in/ tot/ put] front of his friends. He generally [liked/ flow/ jeep] his parents, except for the fact [shoe/ went/ that] they were sending him to summer [bus/ dump/ camp] this year.

Stuart did not want [to/ wit/ cow] go to summer camp. The thought [and/ be/ of] it made him picture himself hot [coat/ rest/ and] thirsty, hiking up a dusty trail. [Bit/ He/ Go] knew that summer camp food had [of/ to/ my] be bad news, too. Besides, summer [camp/ free/ dog] was for people with nothing else [fad/ to/ sew] do. He had plenty of things planned [for/ much/ very] his summer at home.

"Summer camp [will/ yes/ belt] be good for you," said Mother. "[Feel/ And/ Lot] I don't want to hear another [catch/ phone/ word] about it!" Stuart moped around the [beat/ opens/ house] until it was time to go. Mother [had/ with/ boy] packed his trunk full of clothes, [and/ sort/ time] she and Dad took Stuart to [real/ glob/ the] bus station. Stuart tried hard not [to/ sun/ we] cry when he hugged them goodbye. [Yet/ He/ Sat] ran onto the bus and buried [beam/ his/ neat] head in his hands. After a [while/ tall/ hate], he looked out the window.

CBM MAZE FLUENCY

SUMMER CAMP

Stuart had nice parents. They did not embarrass him in [glad/ front/ yellow] of his friends. His father did [not/ ant/ soft] yell at him during his baseball [center/ games/ lines], and his mother never kissed him [in/ tot/ put] front of his friends. He generally [liked/ flow/ jeep] his parents, except for the fact [shoe/ went/ that] they were sending him to summer [bus/ dump/ camp] this year.

Stuart did not want [to/ wit/ cow] go to summer camp. The thought [and/ be/ of] it made him picture himself hot [coat/ rest/ and] thirsty, hiking up a dusty trail. [Bit/ He/ Go] knew that summer camp food had [of/ to/ my] be bad news, too. Besides, summer [camp/ free/ dog] was for people with nothing else [fad/ to/ sew] do. He had plenty of things planned [for/ much/ very] his summer at home.

"Summer camp [will/ yes/ belt] be good for you," said Mother. "[Feel/ And/ Lot] I don't want to hear another [catch/ phone/ word] about it!" Stuart moped around the [beat/ opens/ house] until it was time to go. Mother [had/ with/ boy] packed his trunk full of clothes, [and/ sort/ time] she and Dad took Stuart to [real/ glob/ the] bus station. Stuart tried hard not [to/ sun/ we] cry when he hugged them goodbye. [Yet/ He/ Sat] ran onto the bus and buried [beam/ his/ neat] head in his hands. After a [while/ tall/ hate], he looked out the window.

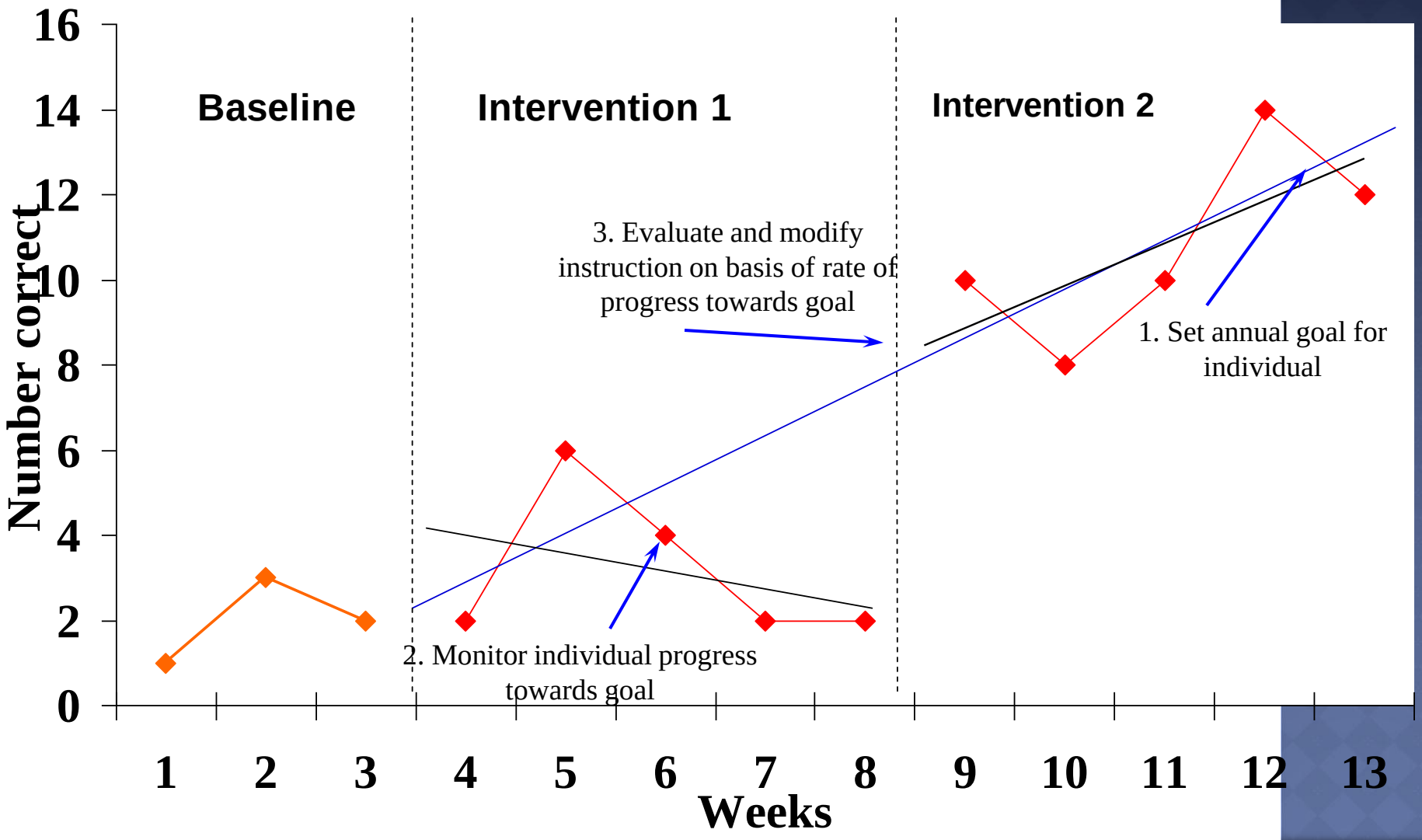
Camp Mac [was/ snow/ rent] in the Cheaha Mountains of Alabama. Stuart [twist/ never/ girls] knew there were any mountains in Alabama. [The/ Now/ Man] bus climbed and climbed and soon stopped. [A/ By/ In] man helped Stuart carry his trunk [lot/ to/ yes] the camp gate. There he was [met/ when/ ripe] by a teenage boy with a [while/ risen/ suntan] and a whistle around his neck. "[In/ Hi/ Or] there! You must be Stuart Sikes. I'm Tom, [here/ into/ your] cabin counselor. I'll help you get settled [in/ go/ dot], then we will go eat lunch [nerve/ with/ goal] the others."

Stuart was quiet and followed Tom. [There/ Either/ Ferry] were so many children at the [will/ camp/ she], and they all were having fun. [Box/ They/ Lane] looked at Stuart and someone said [hello/ pretty/ lastly]. Stuart was already homesick and his stomach [ice/ book/ hurt].

After lunch they all went down [by/ top/ out] the lake to go for canoe [faith/ still/ rides]. Three boys asked Stuart to join [them/ sent/ jeans] and Stuart did with a smile. [Hurt/ Trip/ Maybe] they would be his friends. By [that/ know/ lope] night Stuart had forgotten about Mother [so/ step/ and] Dad. He was having so much [nose/ fun/ body] at summer camp that he did [bet/ not/ mad] want to be any place else.

Data Decision-Making Rules in an RTI Framework Using CBM Data

VIP OF CBM (VERY IMPORTANT PIECES)—GRAPHING DATA, SETTING GOALS, AND USING DATA FOR INSTRUCTIONAL DECISION-MAKING



STEPS INVOLVED IN DATA-BASED DECISION-MAKING

1. Decide on level of implementation
2. Decide on which measures to use
3. Collect screening or baseline data
4. Determine monitoring level
5. Set long range goal
6. Decide how often to monitor
7. Graph data
8. Make instructional changes using decision-making rules and continue monitoring

DATA UTILIZATION AND DECISION-MAKING RULES

More focus on data—less subjectivity

COLLECTING DATA IS GREAT…

- But USING the data to make instructional decisions is most important!
- Select a decision-making rule and STICK WITH IT!
  - Need to have decision-making rules for school-wide data, grade level data, and individual data
  - Use your problem-solving questions to guide decision-making

Data Utilization—Most Important Aspect of CBM!

- Is the student progressing?
- Is the instruction effective?
- Do I need to change instruction?
- Is the instructional change effective?
- Should I raise the student's goal?

Goal Line Versus Student's Current Rate of Progress

- Examine both level and rate of student progress to determine whether students are progressing adequately to reach end-of-year goals
- Compare student's current rate of progress with projected rate of progress (i.e., goal line)
  - To judge whether the instructional program needs to be modified to better meet student needs

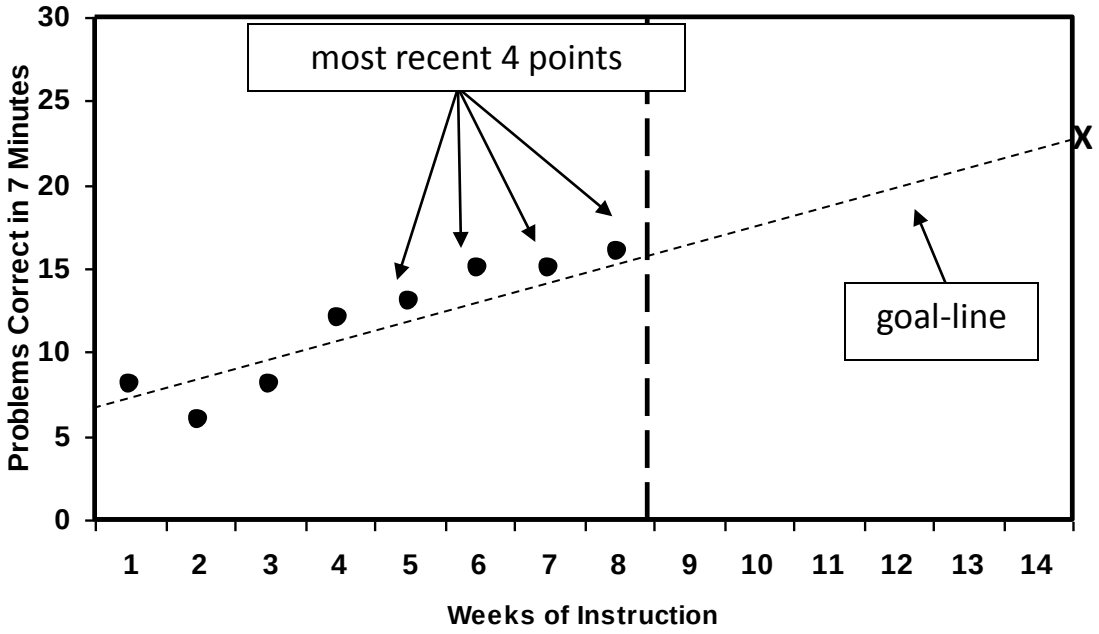
    or
  - To determine whether the goal should be raised

General Decision-Making Framework

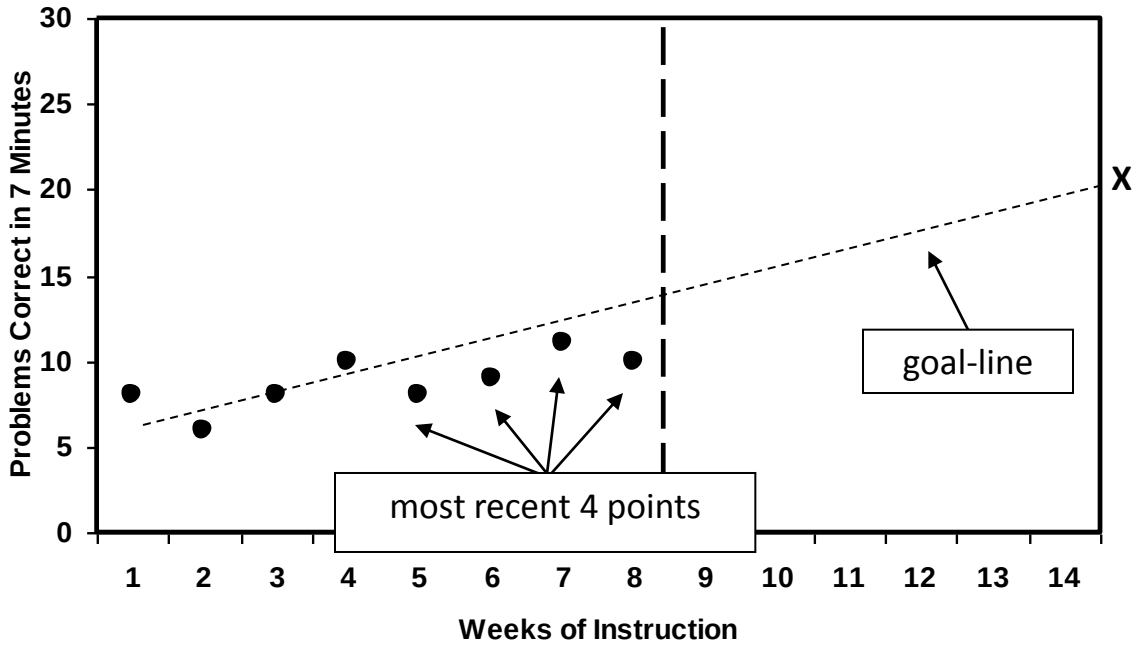
4-Point Rule

- If 3 weeks of instruction have occurred AND at least 6 points have been collected, examine the 4 most recent data points.
  - If all 4 are above goal line, increase goal.
  - If all 4 are below goal line, make a teaching change.
  - If the 4 data points are both above and below the goal line, keep collecting data until trend-line rule or 4-point rule can be applied.

FOUR-POINT METHOD



FOUR-POINT METHOD



General Decision-Making Framework

Trend-Line Rule

- If at least 4 weeks of instruction have occurred AND at least 8 data points have been collected, figure trend of current performance and compare to goal line.
  - If trend of student progress is steeper than goal line, raise goal.
  - If trend of student progress is less steep than goal line, make a teaching change.
- Some CBM programs map in a trend line for you

AIMSweb®

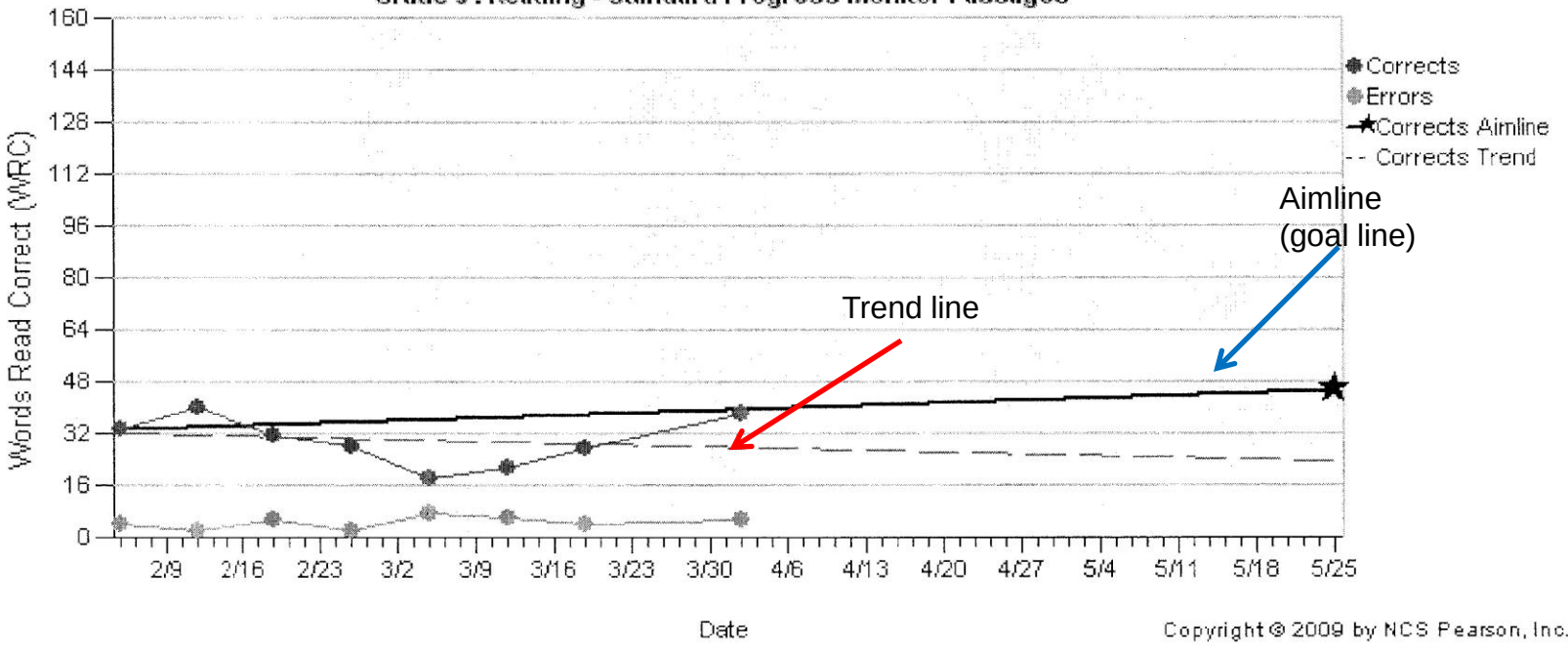
Year: 2008-2009

Progress Monitoring Improvement Report for Sharpay Evans

from 02/04/2009 to 05/25/2009

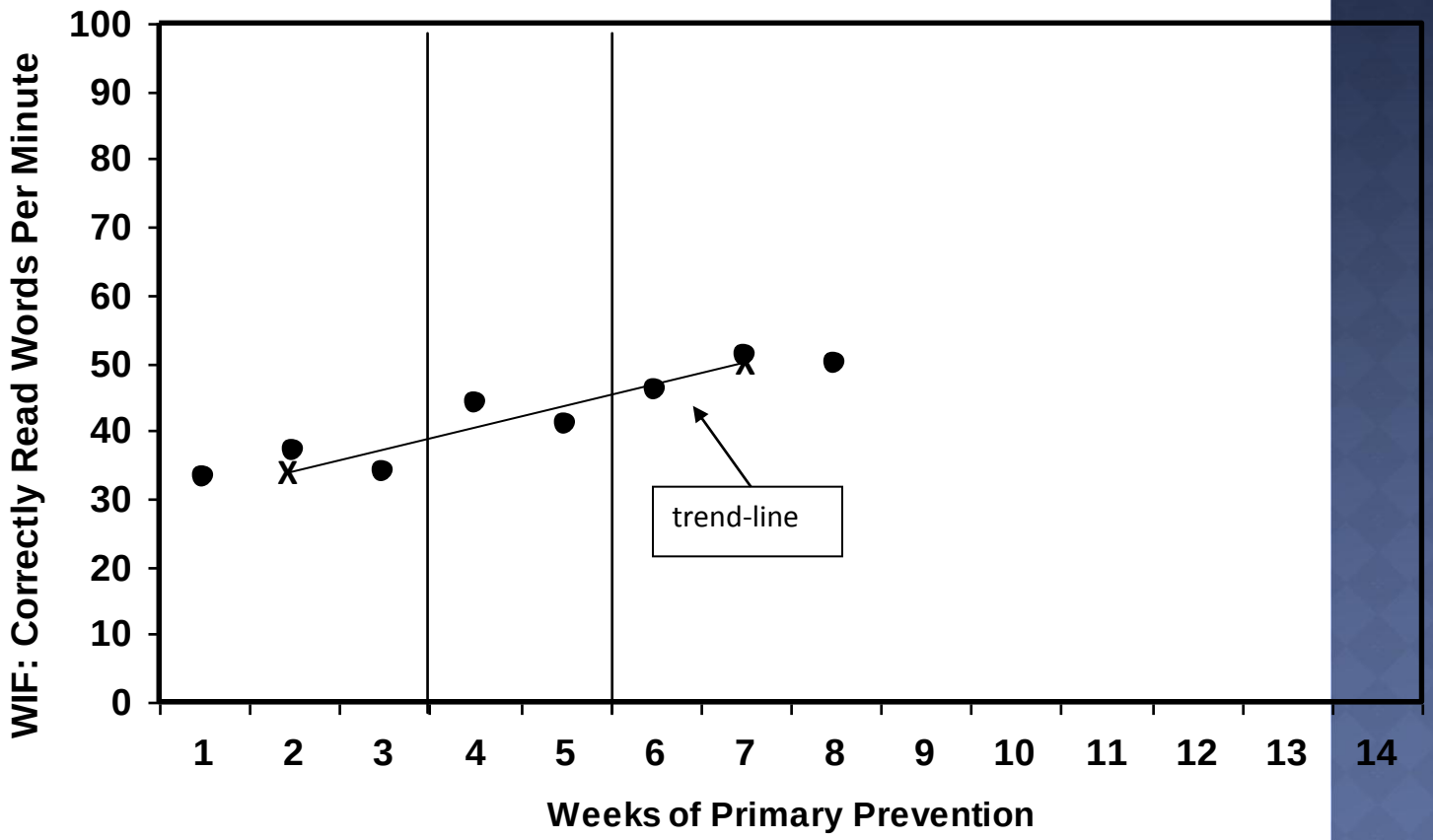
Sharpay Evans **(Grade** 7**)**

Grade 3 : Reading - Standard Progress Monitor Passages

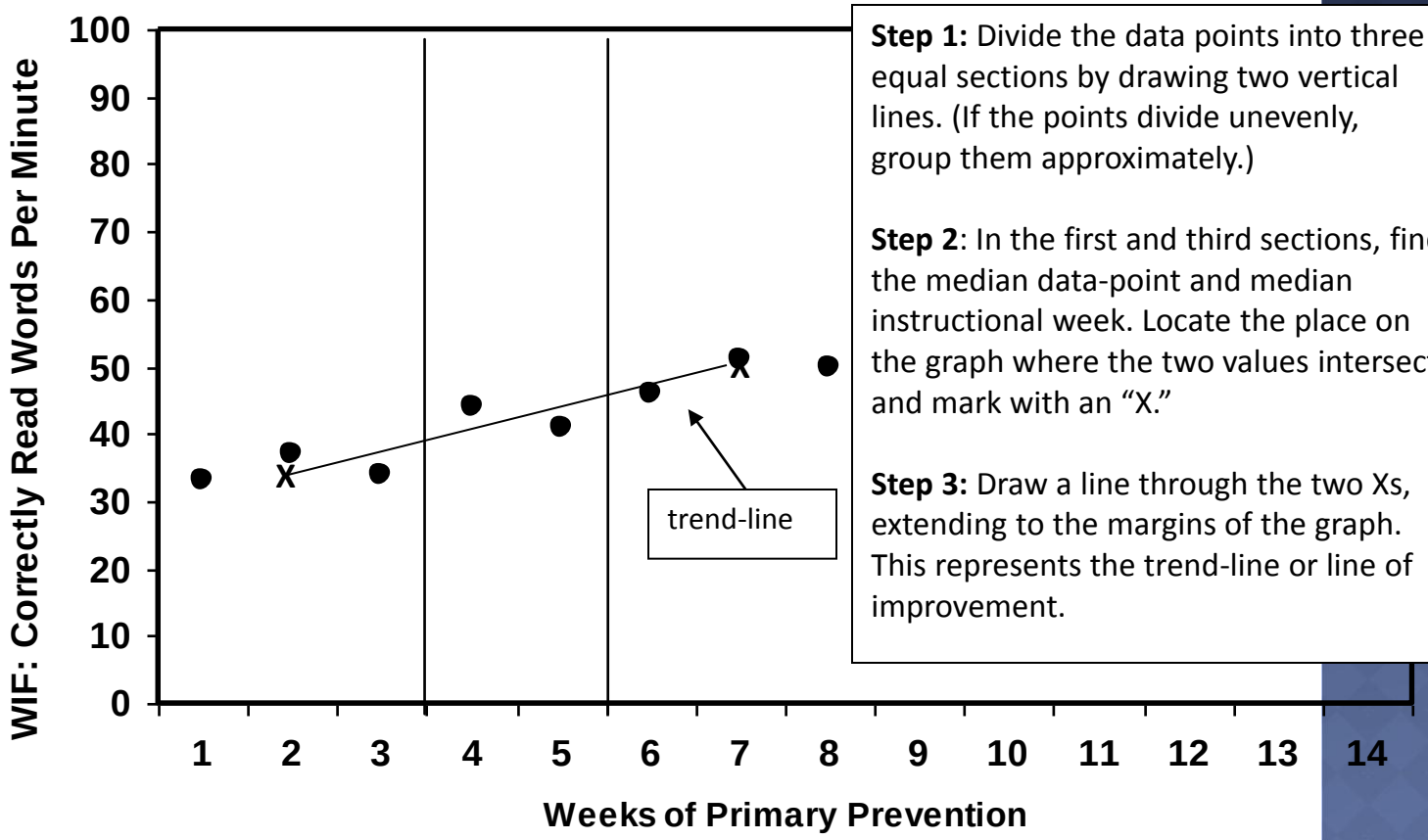


25

CALCULATING SLOPE: FIRST DRAW A TREND LINE



CALCULATING SLOPE: FIRST DRAW A TREND LINE

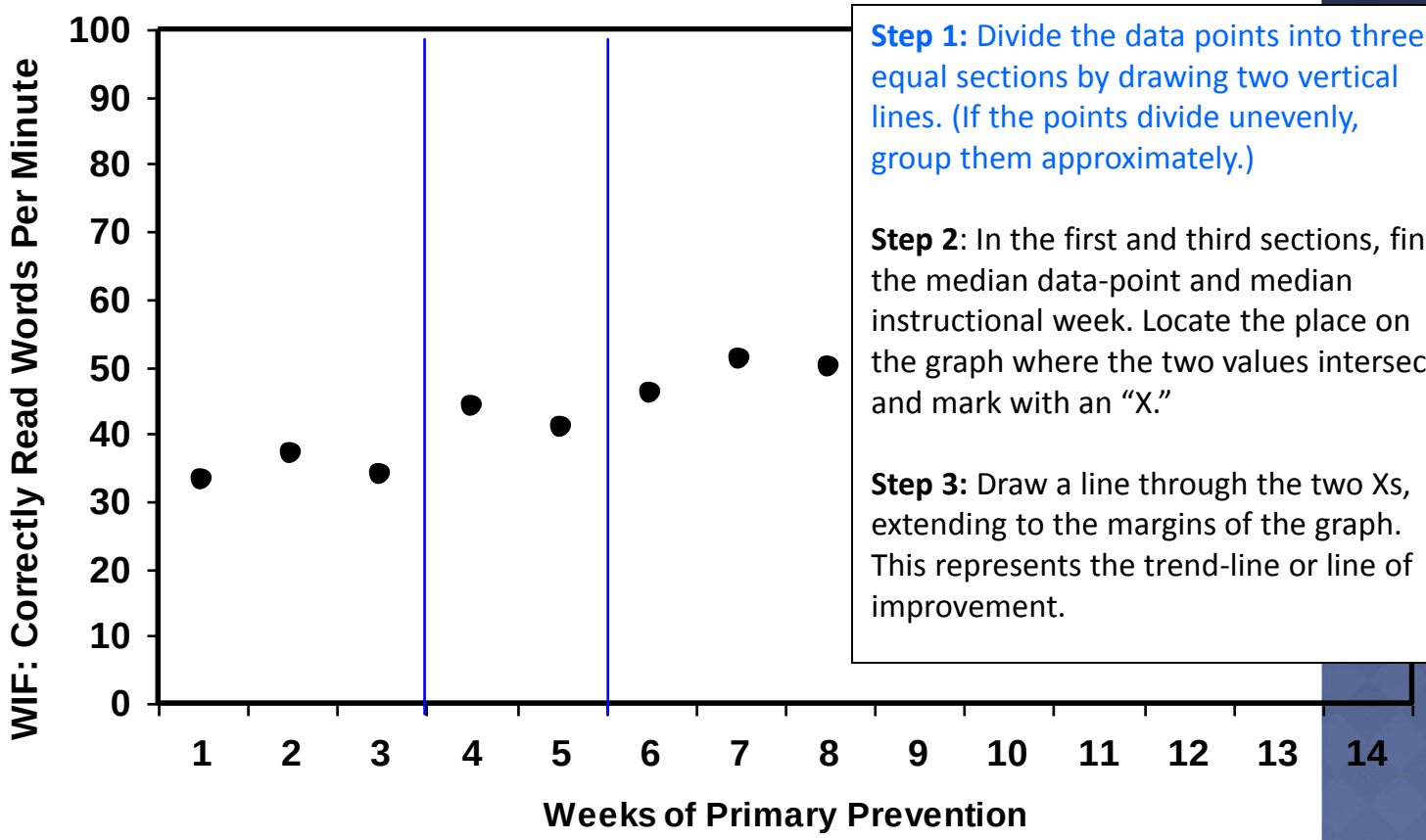


Step 1: Divide the data points into three equal sections by drawing two vertical lines. (If the points divide unevenly, group them approximately.)

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 Xs, extending to the margins of the graph. This represents the trend-line or line of improvement.

CALCULATING SLOPE: FIRST DRAW A TREND LINE

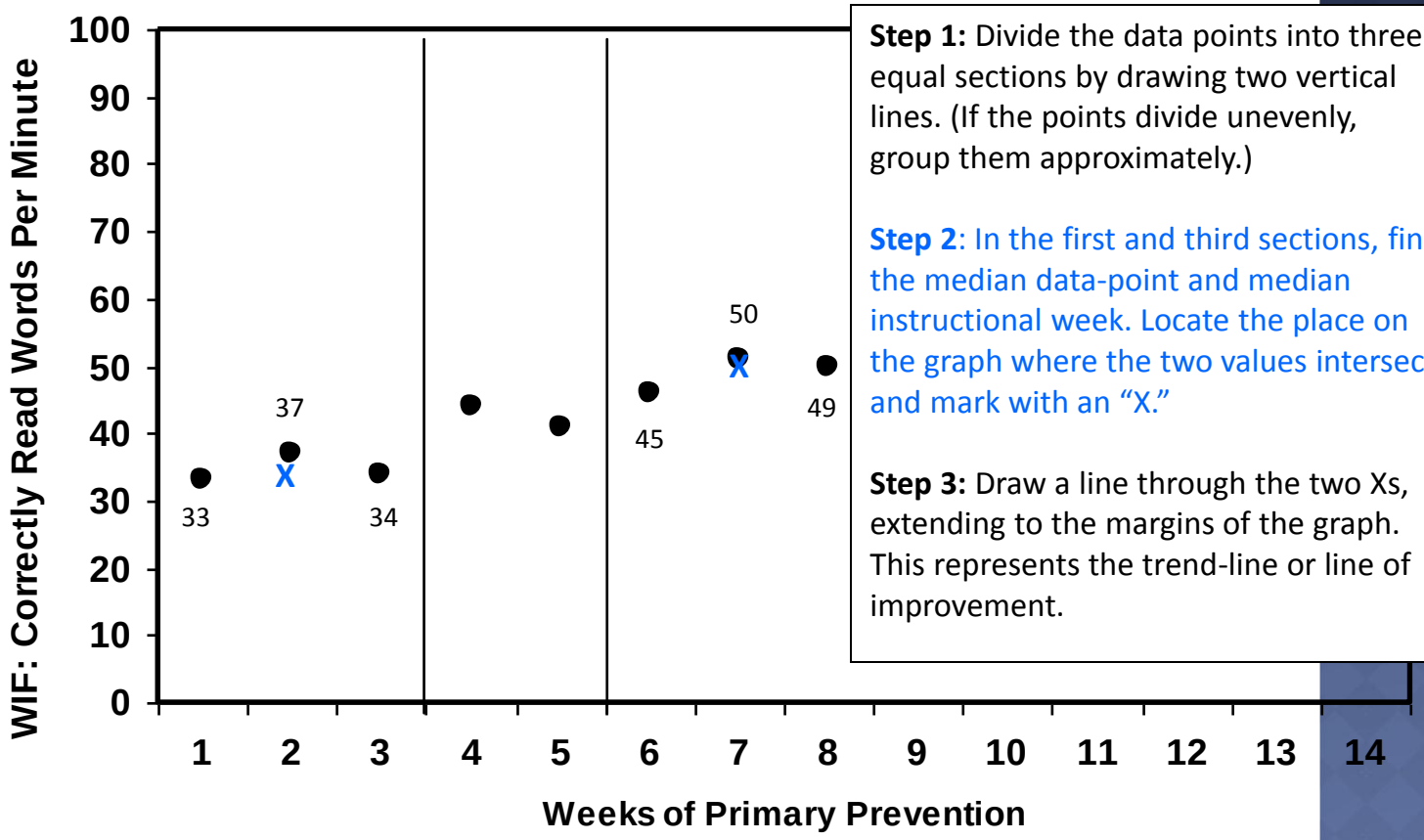


Step 1: Divide the data points into three equal sections by drawing two vertical lines. (If the points divide unevenly, group them approximately.)

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 Xs, extending to the margins of the graph. This represents the trend-line or line of improvement.

CALCULATING SLOPE: FIRST DRAW A TREND LINE

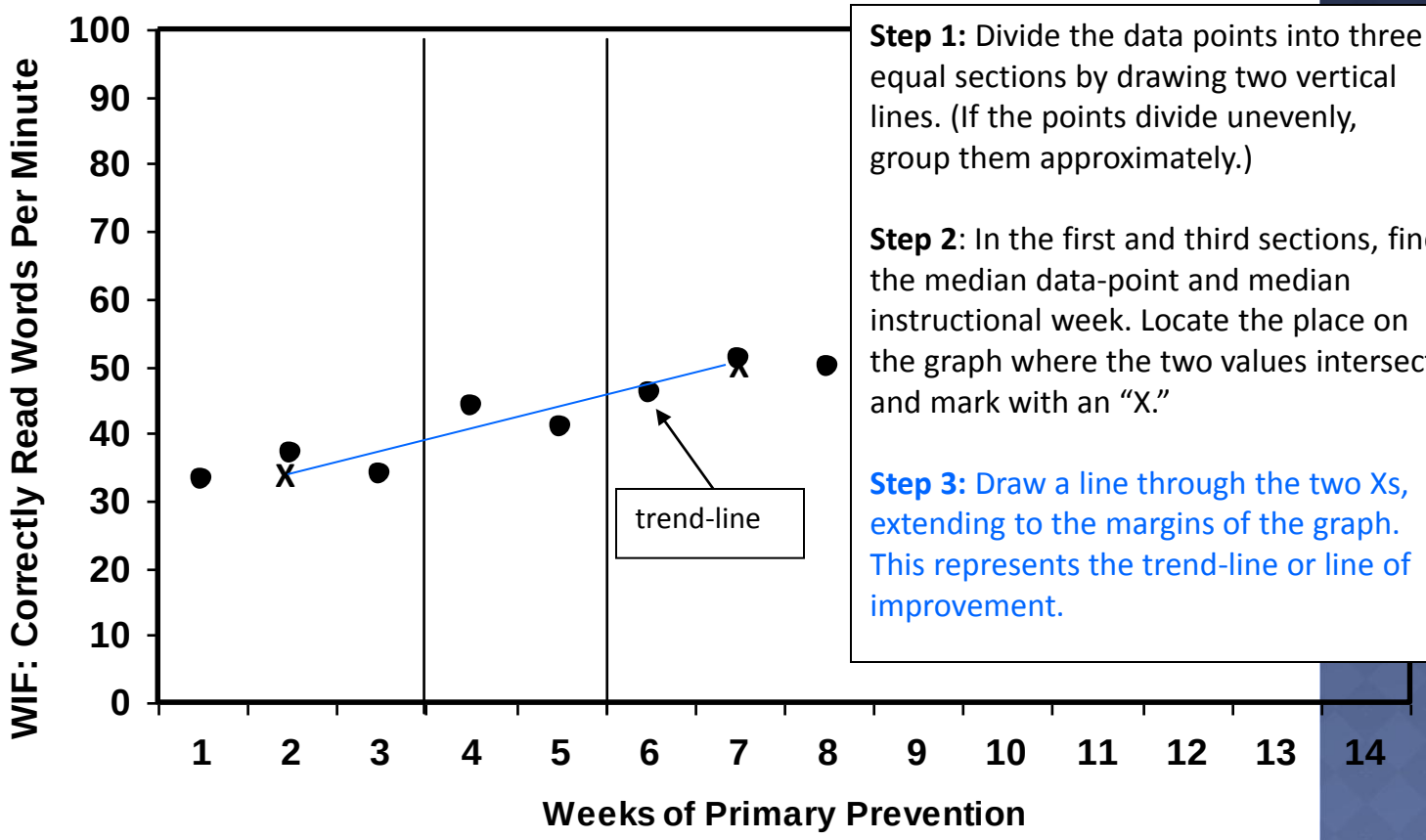


Step 1: Divide the data points into three equal sections by drawing two vertical lines. (If the points divide unevenly, group them approximately.)

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 Xs, extending to the margins of the graph. This represents the trend-line or line of improvement.

CALCULATING SLOPE: FIRST DRAW A TREND LINE

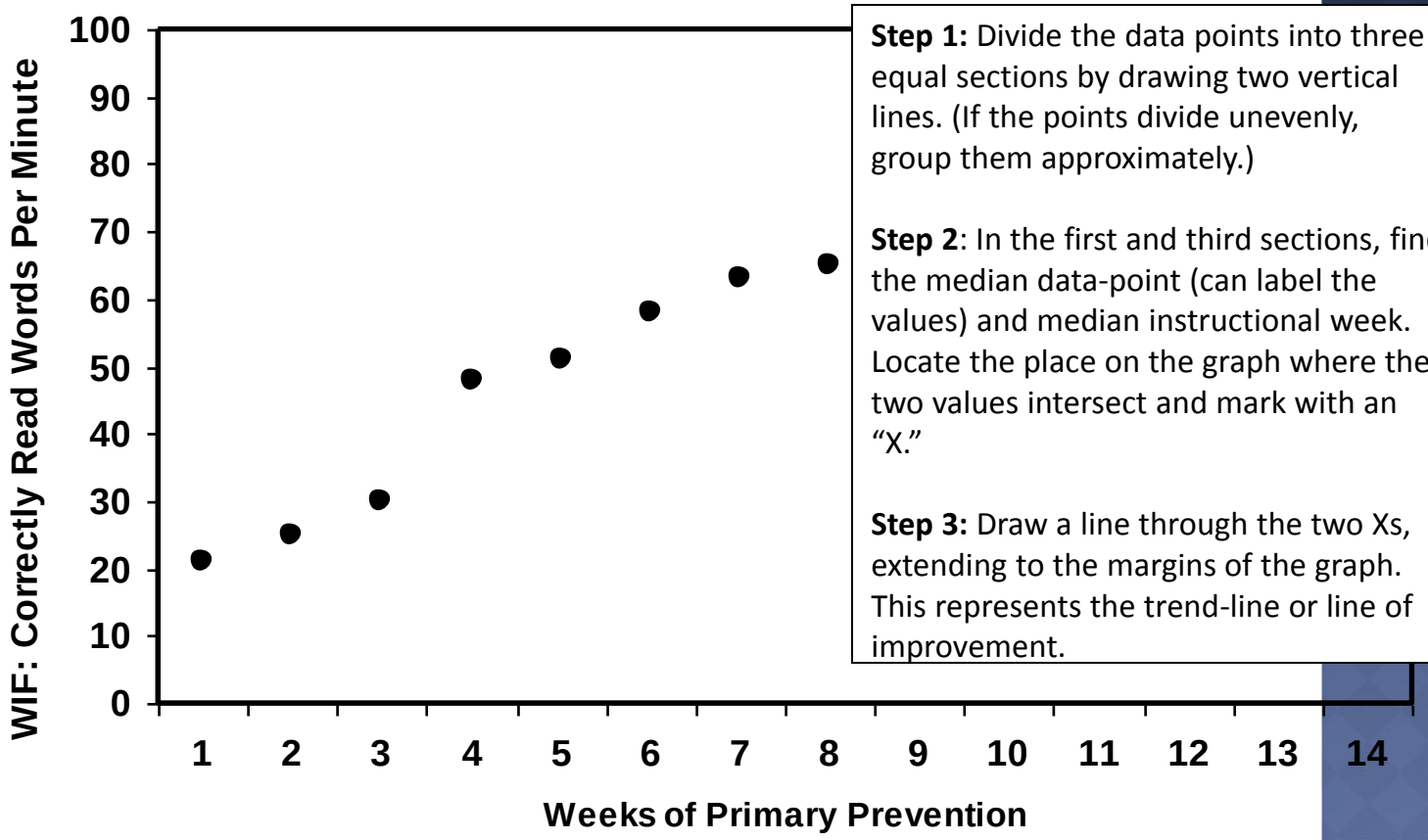


Step 1: Divide the data points into three equal sections by drawing two vertical lines. (If the points divide unevenly, group them approximately.)

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 Xs, extending to the margins of the graph. This represents the trend-line or line of improvement.

CALCULATING SLOPE: FIRST DRAW A TREND LINE

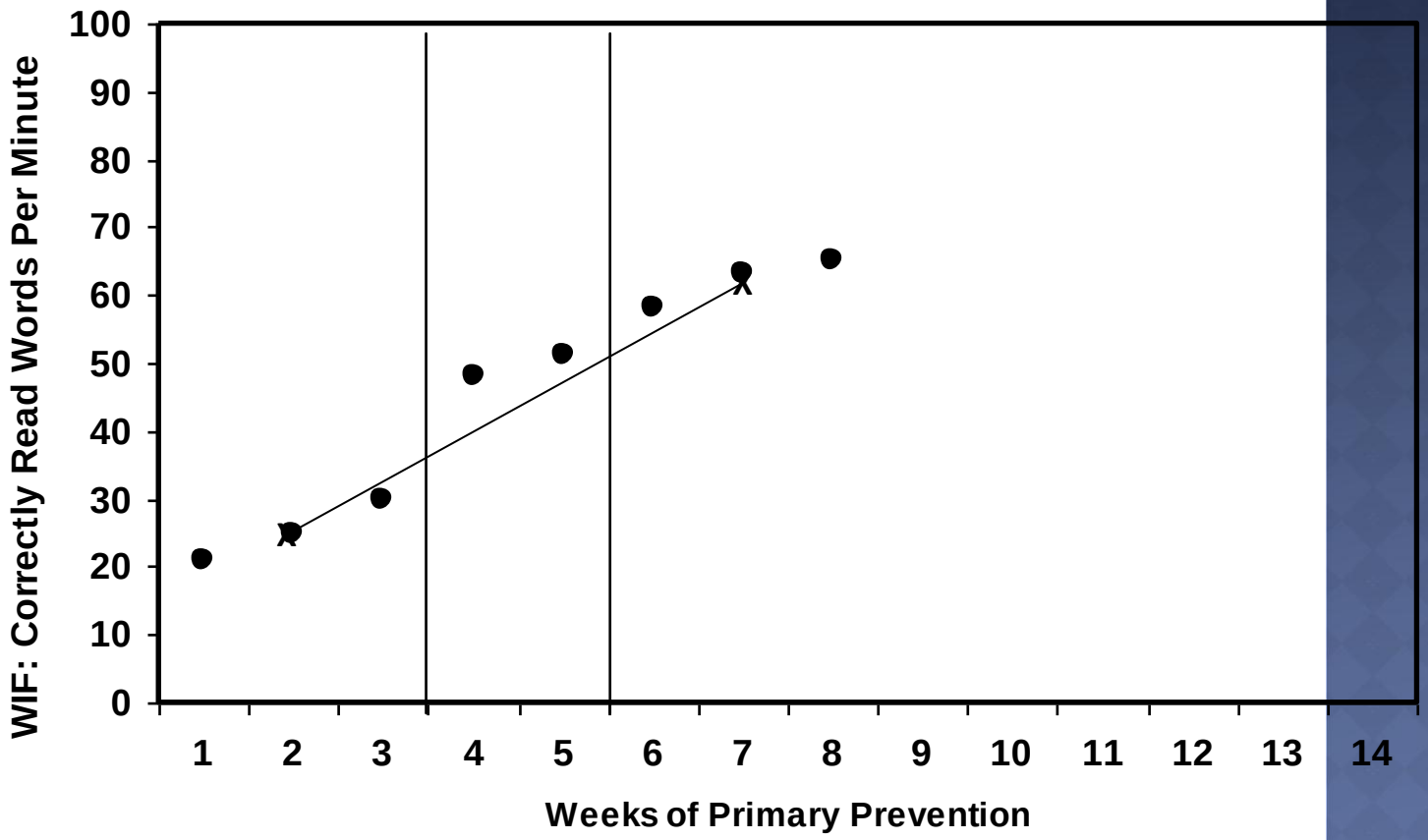


Step 1: Divide the data points into three equal sections by drawing two vertical lines. (If the points divide unevenly, group them approximately.)

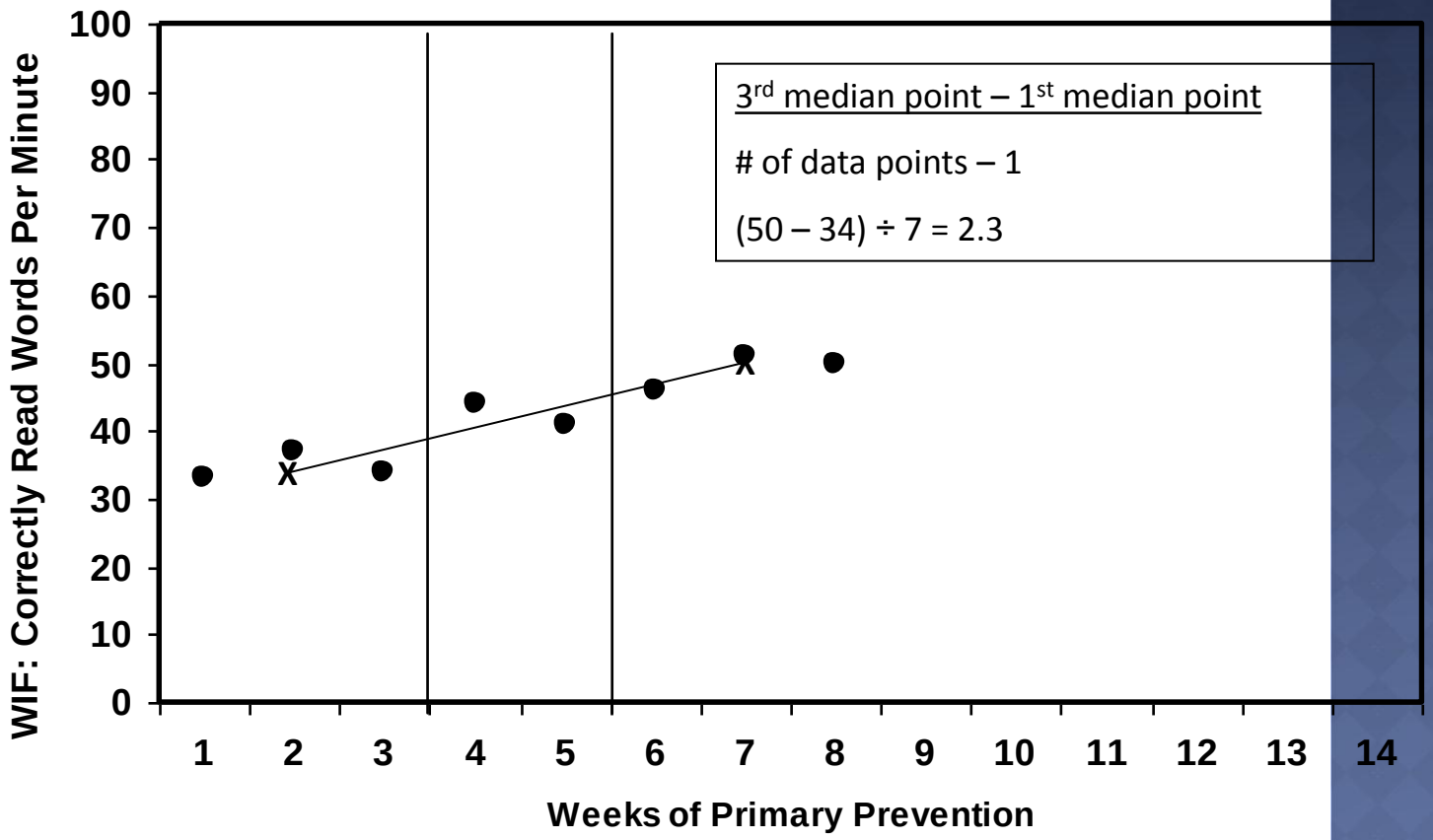
Step 2: In the first and third sections, find the median data-point (can label the values) and median instructional week. Locate the place on the graph where the two values intersect and mark with an "X."

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

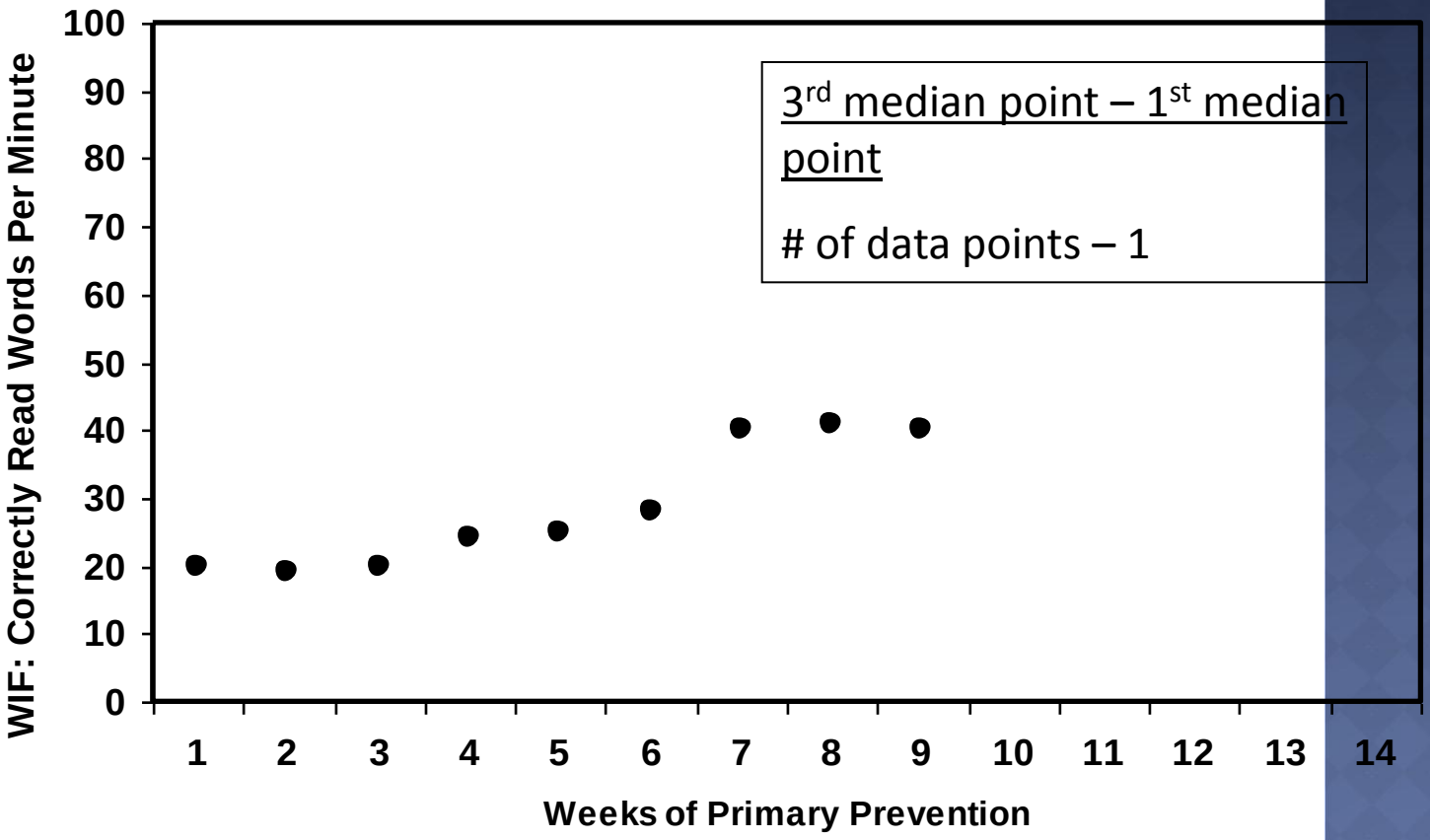
CALCULATING SLOPE: FIRST DRAW A TREND LINE



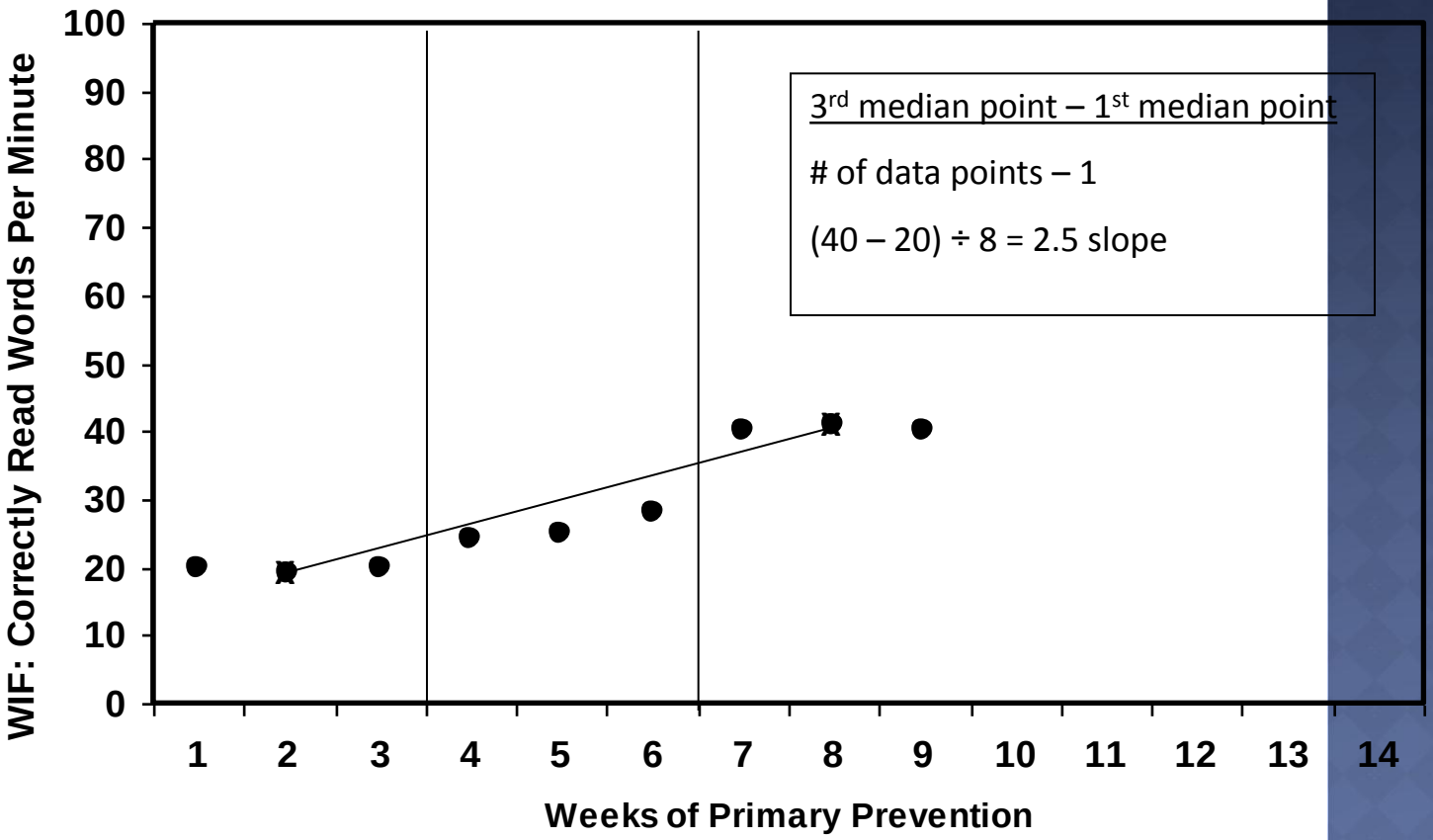
CALCULATING SLOPE: NEXT, FOR THE TREND LINE, QUANTIFY WEEKLY RATE OF INCREASE



Calculating Slope: Next, for the Trend Line, Quantify Weekly Rate of Increase



Calculating Slope: Next, for the Trend Line, Quantify Weekly Rate of Increase



Establishing a Trend Line (Slope, Line of Best Fit)

- As I mentioned, some CBM computer programs will do this OR
- Can also calculate by computer using Excel
- In Excel, right click on graphed data, add trendline, click on options, and add equation. y=mx+b (m=rate or slope)
- Only problem—can't calculate slope within phases of instruction

USE OF PROBLEM-SOLVING STEPS TO EXAMINE DATA

Examining and Discussing Data—General Format Using the Problem-Solving Model

- Define the problem
- Develop an assessment plan
- Analysis of the assessment results and goal setting
- Develop and implement the intervention plan

MEMBER INVOLVEMENT

- Involve all relevant stakeholders
- Determine role for each team member—just like in cooperative learning!
  - Facilitator
  - Note taker
  - Timer
  - Social chair—make sure each person contributes or is given the opportunity to contribute
  - Data guru
  - Evidence-base questioner—intervention specialist
  - Other?

Suggested Steps for Discussing Individual Progress Monitoring Data

- Define the problem: Student difficulty is presented in concrete and measureable terms
- Assessment plan: How often has the student been progress monitored?
  - What was the student's median baseline score? (present level of performance)
  - What short term objective (growth criteria) or long range goal (benchmark) did you decide on for the student (i.e., number of words or digits gained per week)? Why did you decide on this?

SUGGESTED STEPS FOR DISCUSSING INDIVIDUAL PROGRESS MONITORING DATA

- Analyze the assessment results:
  - What does the data indicate so far? Is the student on track to meet, not meet, or exceed his/her goal?
  - Does it appear the instruction that you are using for this student is working? Why or why not?
- Develop and implement the intervention plan:
  - Is an instructional change needed at this time?
  - Have you determined what intervention you might implement with this particular student? If yes, what are some you've thought of? If no, brainstorm with the group to come up with some. How will you determine if the intervention is evidence-based?

DECISION-MAKING RUBRIC

- **To be implemented at least every 6 to 8 weeks**
- Three questions to guide discussion on data at problem solving team meetings:
  - What is the student's goal? Current level?
  - What decision-making rule are we using (i.e., trend line)? Can we apply that now?
  - If a change needs to be made, what do we do?

Decision-making rubric—to be implemented at least every 6 weeks

Three questions to guide discussion on data at problem solving team meetings:

1) What is the student's goal? Current level?
2) What decision-making rule are we using (4-point; Trend; rubric)? Can we apply that now?
3) If a change needs to be made, what do we do?

FIRST, to make a decision on movement/non-movement between tiers, the following rubric should be applied:

Student should move to a more intensive tier	Student should stay in a tier and an instructional change should be made	Student should stay in a tier with no changes	Student should be moved to a less intensive tier
Trend of data or last 4 consecutive data points are below the goal line for the past 6 weeks, and when the student was checked 6 weeks prior	Trend of data or last 4 consecutive data points are below the goal line for the past 6 weeks	Trend of data or last 4 consecutive data points are even with the goal line	Trend of data or last 4 consecutive data points are above the goal line
Classroom work samples and assessment data indicate that the student is not making progress in the current curriculum, even after a change has been made	Classroom work samples and assessment data indicate that the student is making progress, but not at the expected rate	Classroom work samples and assessment data indicate that the student is adequate or expected progress	Classroom work samples and assessment data indicate that the student is making excellent progress and it does not appear that the intervention may be needed
Inappropriate classroom behaviors are escalating	Frustration is evident, although this has not yet manifested in inappropriate classroom behaviors	Classroom behavior is status quo or has improved	Classroom behavior has improved and frustration is less evident
Other?	Other?	Other?	Other?

- **FIRST**, to make a decision on movement/non-movement within tier 3, the rubric should be applied.

- **SECOND**, if a change needs to be made, the team questions:
  - Intensity
  - Fidelity
  - Evidence-based of intervention
  - Duration

Application to a Case Study—Decision Making Rubric

- Use the rubric to apply the decision-making framework to Sharpay's graph for the trend line rule. As you do so, consider the following:
  - Sharpay's behavior in the classroom is not a concern at this point
  - Her classwork samples indicate that she is receiving grades of 75% or below and is struggling with sight word vocabulary
  - Using the rubric and Sharpay's graphed data, what is your decision?
  - What are questions you would need to ask in these areas?
    - Intensity
    - Fidelity
    - Evidence-based of intervention
    - Duration

AIMSweb®

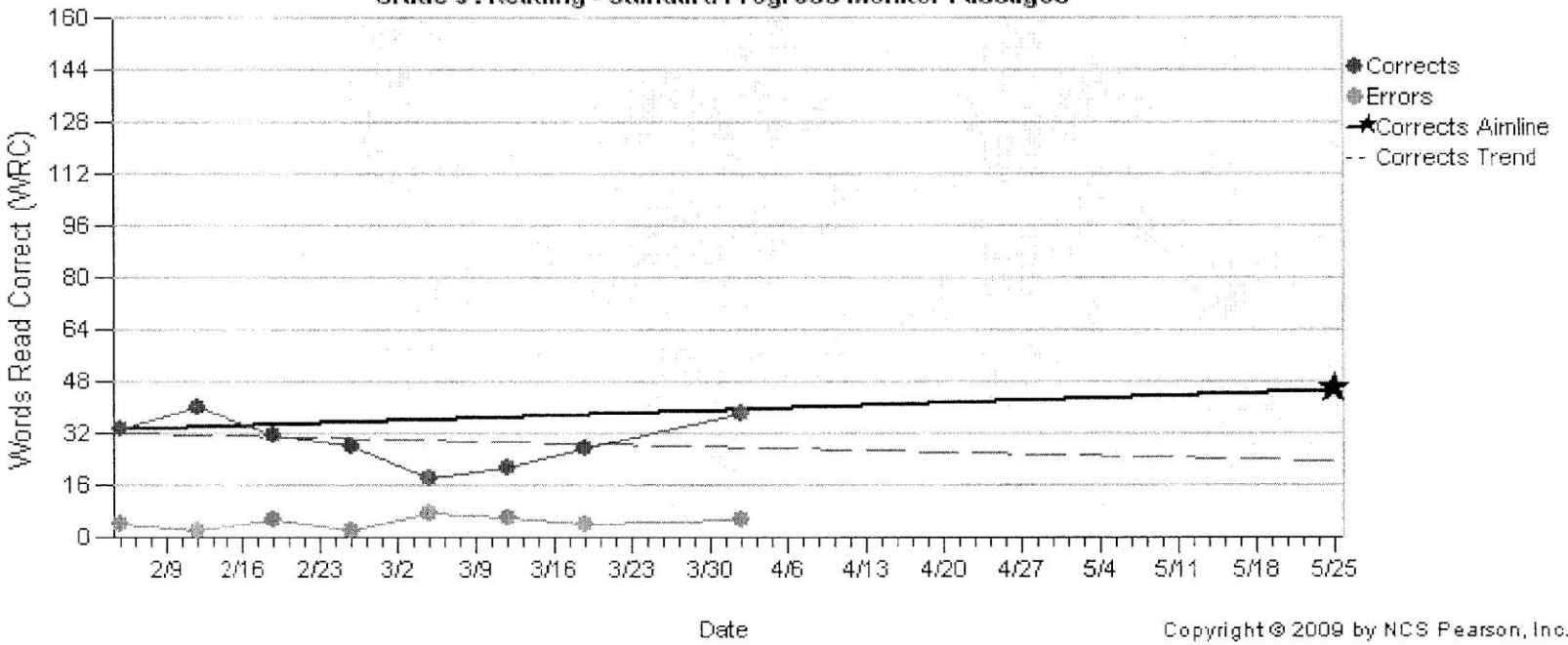
Year: 2008-2009

Progress Monitoring Improvement Report for Sharpay Evans

from 02/04/2009 to 05/25/2009

Sharpay Evans (Grade 7)

Grade 3 : Reading - Standard Progress Monitor Passages



DISCUSSION

- How did the process work?
- How is this the same or different than what you do with your data?
- How could you improve upon what you do with respect to discussion of data? 1 or 2 goals?

TREATMENT FIDELITY

- One of the key components of RtI is lack of response to validated instruction, implemented with integrity
  - Need to check on fidelity of implementation. How can this be done?
  - Checklists, observation, discussion, video
- The purpose of fidelity checks is to create open dialogue regarding what is effective and what needs to be altered
  - Should be an OPEN process—no surprises here!

Fidelity of Implementation—Critical to Intervention Success!

- How is this monitored in schools that you are working with? Or is it monitored?
- How can this become a routine part of a school environment?
- Even though it might appear to create adversarial relationships, how can this lead to more open dialogue and better instructional methods?

RESEARCH-VALIDATED PRACTICES

- 'Quick' places to check
  - Google Scholar--http://scholar.google.com/
    - Find relevant, research-based references for interventions you're considering
  - John Hopkins Evidence Encyclopedia
    - Bestevidence.org
  - Doing what works (dww.ed.gov)
    - New website sponsored by the U.S. Department of Education. DWW is dedicated to helping educators identify and make use of effective teaching practices.
  - What works clearinghouse (http://ies.ed.gov/ncee/wwc/)
  - Florida Center for Reading Research website of programs
    - Fcrr.org

Document Intervention Changes as You Graph Data

- Make sure that you're using your progress monitoring data and decision-making rules to inform instructional decisions that you're making!
  - Like conducting your own research on an ongoing basis!

SELECTING INTERVENTIONS

- How are interventions currently chosen?
- How is the evidence base for these interventions assessed?
- What is one way that you could improve what is already done?

SETTING GOALS

- What are your goals for RTI implementation for this year? Next year? 3 years from now?
- What goals can you set for yourself for individual students? For small groups? For entire classes or grade levels? For your school?

DISCUSSION

- Questions? Comments?
- Thanks and please contact me if you need additional information: lembkee@missouri.edu