Welcome

RTI Preconference

January 23, 2015

How we will work together today….

- **Instruction from us**
- **Experience the work together**
- **Process with colleagues on how the information presented compares with the work in your setting**

Brain Rules *by* DR. JOHN J. MEDINA, developmental molecular biologist

"Plenty of studies show that the brain is incapable of multitasking when it comes to paying attention." -From Rule # 4

You will discover the need to "intently attend" in order to participate in activities that require the use of interpersonal communication techniques.

Please intently attend to your colleagues

Norms of Collaborative Work

Garmston and Wellman

Pausing
Paraphrasing
Posing Questions
Putting Ideas on the Table
Providing Data
Paying Attention to Self and Others
Presuming Positive Intentions

Objectives

- Confirm understanding of the structural elements of RTI
- Confirm understanding of the instructional elements of RTI
- Work to identify areas of your RTI system that can be refined based on information learned today

Table Discussion – Round Robin

What do you think about when you hear the term "RTI"?

A word about the title for this session.

Defining RTI

With RTI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions based on a student's responsiveness.

(National Center on Response to Intervention)

Core RTI Principles

- We can effectively teach **all children**
- Intervene early
- Use a **multi-tier** model of service delivery
- Use a problem-solving method to make decisions within a **multi-tier** model
- Use research-based core materials and, scientifically validated interventions/instruction to the extent available
- Monitor student progress to inform instruction
- Use data to make decisions
- Use assessment for 3 different purposes
  - Screening, diagnostic, progress monitoring

NASDSE, 2006

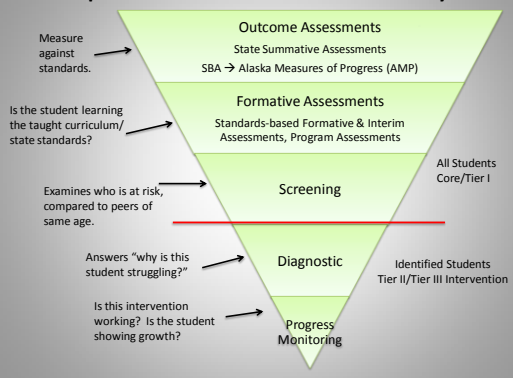
Structural/Instructional

- Structural
  - Scheduling
    - English Language Arts
    - Mathematics
  - Universal screener
  - Progress monitoring
  - Tiered instruction
  - Collaboration meetings
  - Instructional materials
- Instructional
  - Explicit
  - Systematic
  - High Engagement
  - Sequenced with prior skills
  - Gradual Release of Responsibility
  - Immediate Corrective Feedback
  - High-Level Questioning

Essential Components of RTI

- Screening
- Progress Monitoring
- School-wide, Multi-Level Prevention System
  - Tier 1
  - Tier 2
  - Tier 3
- Data-Based Decision Making for:
  - Instruction
  - Evaluating effectiveness
  - Movement within the multi-level system
  - Disability identification (in accordance with state law)

Comprehensive Assessment System



Universal Screening

- PURPOSE: identify students who are at risk of poor learning outcomes
- FOCUS: conducted for all students
- TOOLS: involves brief assessments that are valid, reliable, and evidence based
- TIMEFRAME: administered more than one time per year (e.g., fall, winter, spring)

Characteristics of a Screener

Reliable and **valid** indicator of student achievement

Simple, efficient, and of **short** duration to facilitate administration by teachers

Provides assessment information that **helps teachers plan better instruction**

Sensitive to the improvement of students' achievement over time

Purpose of the Risk Analysis Report

- Provides complementary data to support team-based RTI instructional decisions.
- Supports RTI by providing multiple sources of data.
- Enables users to drill deeper into each category for additional information.
- Usually includes attendance, behavior, academic assessments, grades, and credit data.

Purpose of Screening

- Identify students at risk for poor learning outcomes
- Identity students who need additional assessment (i.e., progress monitoring) and instruction (i.e., Tier 2/Tier 3)
- Provide data on the effectiveness of the core instruction and curriculum

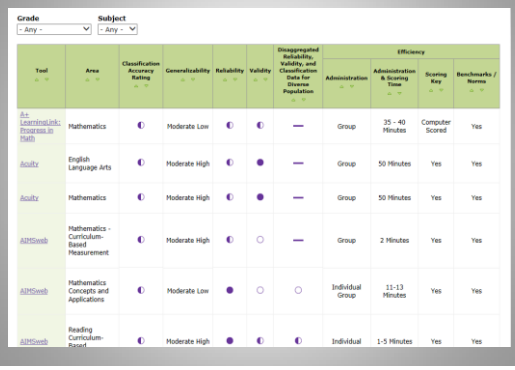
Example – Tier Transition Report

	Fall	Transition	Winter	Transition	Spring
Tier 3	3 (15.7%)	3 0 0	4 (21%)	0 0 0	0 (0%)
Tier 2	10 (52.5%)	1 7 1	12 (63.1%)	0 0 0	0 (0%)
Tier 1	6 (31.5%)	0 4 2	3 (15.7%)	0 0 0	0 (0%)
New Student		1		0	
Unscored		1		0	
Total Students	19		19		0

Example – Scores and Percentiles Report

Student	Fall				Winter			
	Corrects	Errors	Accuracy	Service Code	Corrects	Errors	Accuracy	Service Code
Targets	77				105			
1	33	5	86.8%	G	51	1	98.1%	G
2	52	5	91.2%	G	75	2	97.4%	G
3	56	4	93.3%	G	75	0	100.0%	G
4	9	10	47.4%	G	14	6	70.0%	G
5	8	10	44.4%	G	16	5	76.2%	G
6	34	5	87.2%	G	55	1	98.2%	G
7	38	5	88.4%	G	73	0	100.0%	G
8	5	10	33.3%	G				
9					30	5	85.7%	G
10	19	7	73.1%	G	57	4	93.4%	G
11	48	4	92.3%	G				
12	17	10	63.0%	G	48	5	90.6%	G
13	12	7	63.2%	G	21	6	77.8%	G
14	17	8	68.0%	G	20	7	74.1%	G
15	5	7	41.7%	G	4	6	40.0%	G
16	9	8	52.9%	G	24	4	85.7%	G
17	20	7	74.1%	G	32	7	82.1%	G

http://www.rti4success.org/resources/tools-charts/screening-tools-chart



Discuss – Elbow Partner

How do you leverage the screening data as a critical component of your comprehensive assessment system?

Diagnostic Assessment

PURPOSE: identify the specific skills with which students struggle

FOCUS: struggling students

TOOLS: longer assessments (about 10-20 minutes per student) that are skill specific, not grade-level specific

TIMEFRAME: administered when student is identified for intervention

Diagnostic Tools

Information is used for designing intervention or instructional emphasis in core instruction.

Quick Phonics Screener (QPS)

Diagnostic Decoding Survey (DDS)

CORE Phonics Survey.

Math Reasoning Inventory - www.mathreasoninginventory.com

Assessing Math Concepts - www.assessingmathconcepts.com

Mathematics Assessment Supplement – NCII

Schools Often Use Only Six Steps

1. Establish a research-based core program appropriate to your student and teacher population. Use data to determine if the core programs are effective.
2. Screen students and use data from screening assessment to identify those who may not be reading as well as expected for a given grade level.
3. Group students with similar instructional needs based on the screening data.
4. Plan instruction based on the data acquired during screening.
5. Teach students in small flexible groups. Use progress monitoring data to adjust instruction.
6. Progress monitor students and use the data to adjust instruction accordingly.

Seven Steps to Achieve the Best Results

1. Establish a research-based core reading or language arts program appropriate to your student and teacher population. Use data to determine if the core programs are effective.
2. Screen students and use the data from screening assessment to identify those who may not be reading as well as expected for a given grade level.
3. ***Diagnose weaknesses and use diagnostic assessment data to pinpoint the specific weaknesses of those students identified during screening who are not performing as expected.***
4. Group students with similar instructional needs based on the screening and diagnostic data.
5. Plan instruction based on the data acquired during screening and diagnosis.
6. Teach students in small, flexible groups. Use progress monitoring data to adjust instruction.
7. Progress monitor students and use the data to adjust instruction accordingly.

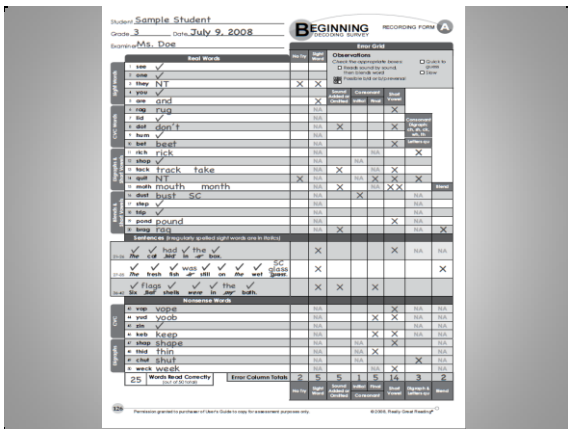
Quick Phonics Screener

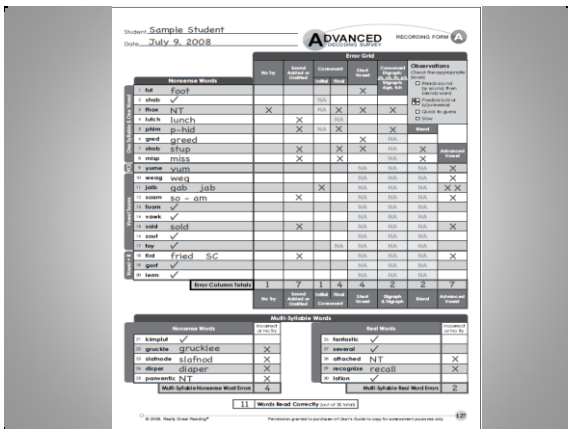
Student Copy - page 2

Task 6(a)	lick sling sunk wrap ship whiz moth sigh chin knob
Task 6(b)	The ducks chomp on the knot. What is that on the right? Wring the wet dish cloth in the sink.
Task 7	foam roast • flea creak • mood scoop • steep bleed raise waist • fold scold • spray gray • shout mount spoil join • joy royal • haul fault • brawl straw
Task 8	discount dismiss • nonsense nonstop • index intent • return regard station motion • famous jealous • madness witness • mission session • portable drinkable • fastest dampest • battle handle • mouthful fearful • traffic plastic • beware beneath • decay demand
Task 9(a)	moment crater bacon spider escape crazy mascot address basket punish
Task 9(b)	amputate liberty dominate elastic entertain practical innocent electric volcano segregate
Task 9(c)	particular contaminate community superior vitality evaporate inventory prehistoric solitary emergency

2nd Grade QPS Class Summary

Student Name	Task 1 Letter-sounds (26, 21, 5)	Task 2 VC & CVC (10, 20)	Task 3 CCVC & CCVC (10, 10)	Task 4 VCe (10, 10)	Task 5 Vowel+r (10, 10)	Task 6 Cons. Digraph (10)	Task 6 Vowel Pair (10)	Task 6 Prefix/ Suffix (10)	Task 7 2 syl. (10)	Task 7 3 syl. (10)	Task 7 4 syl. (10)
Claire		9	7	7	4 4	8	3	3			
Jose		10	8	9	5 6	6	10	7			
Tammy		5 6	5 4								
Jamie		8	9	4	5 3 4						
Joseph		4 4	4 3								
Shalin		8	9	8	8	8	12	14			
Tia		5 5	4 4								
Brandon		9	9	7	8	8	17	19			
Matt		8	7	4 5	3 3						
Mary		10	10	9	7	4	9				





Grade Level Action Plan

School: Grade: Second Grade Date: October 2009 – January 2010

Area of Focus	Instructional Plan	Who Delivers?	Resources Needed?	Measure of Effectiveness
VC & CVC Tammy Joseph Tia	Reading Mastery (90 minute replacement core)	Teacher	RM materials	Lesson tests Progress Monitoring
CVCC & CCVC Tammy Joseph Tia	Reading Mastery (90 minute replacement core)	Teacher	RM Materials	Lesson tests Progress Monitoring
VCe Jamie Matt	Quick Erase Odd Man Out Skill Builders, Rapid Naming Skill Sheets Dictation Chalkboard intervention activities • 10 minutes per day	Teacher Parapros	Word list Skill builders	Progress Monitoring (RCBM, end of first grade passages)
Vowel=r Claire Jose Jamie Matt	Quick Erase Odd Man Out Find the Pair Skill Builders, Rapid Naming Skill Sheets Dictation • 10 minutes per day	Teacher Parapros	Word list Skill builders	Progress Monitoring (RCBM, end of first grade passages)
Cons. Digraph Jose Mary	Skill Builders, Rapid Naming Skill Sheets Dictation Matching Picture/ Digraph cards • 10 minutes per day	Teacher Parapros	Skill Builders Cards	Progress Monitoring (RCBM, end of first grade passages)

Discuss – Different Elbow Partner

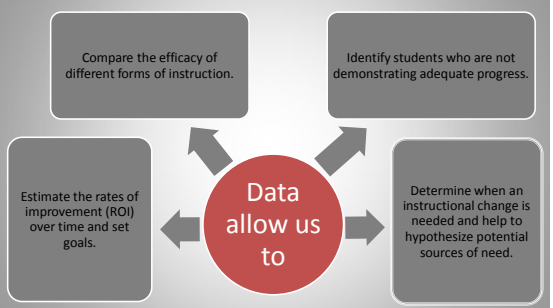
If Diagnostic Assessments were a regular element of your instructional/assessment system, how might this impact students?

Progress Monitoring

How do we Monitor Progress?

- Is the core instruction and intervention having a positive impact?
- For struggling students
- Instructional level

Why Implement Progress Monitoring?



Center on Response to Intervention

Progress Monitoring

- PURPOSE: monitor students' response to Tier 2 and Tier 3 instruction
- FOCUS: students identified through screening as at risk for poor learning outcomes
- TOOLS: brief assessments that are valid, reliable, and evidence based
- TIMEFRAME: students are assessed at regular intervals (e.g., weekly, biweekly, or monthly)

Center on Response to Intervention

Research indicates that student achievement increases when:

- PM data are frequently collected
- PM data are graphically displayed and reviewed
- Decision rules—to continue or modify instruction—are explicit
- PM data collection and decision rules are implemented with integrity
- Clear direction exists for instructional modifications and alternatives

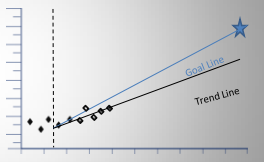
PM Instructional Decision Making

- Decision rules for PM graphs
  - Based on four most recent consecutive scores
  - Based on student's trend line

National Center on Intensive Intervention

Progress Monitoring

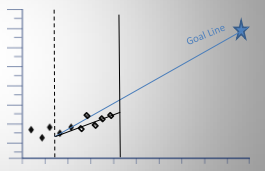
- If the trend line is flat or going down…
  - Change your instructional program.
- If the trend line is less steep than the goal line…
  - Adjust your instructional program to try to increase the student's rate of improvement.



National Center on Intensive Intervention

Progress Monitoring

- When you make an instructional change, add a vertical line to the graph showing when you made the change.
- Then continue collecting data to help you determine whether the instructional change has been effective.



National Center on Intensive Intervention

Plan for acceleration

AIMSweb® National Norms Table
Reading - Curriculum Based Measurement

		Fall		Winter		Spring		
Grade	%ile	Num	WRC	Num	WRC	Num	WRC	ROI
1	90	350444	66	55158	100	55158	128	1.72
	75		30		68		97	1.86
	50		13		36		67	1.50
	25		5		19		40	0.97
	10		2		11		22	0.56
	Mean		*24*		*47*		*71*	*1.31*
	StdDev		*29*		*36*		*40*	*0.31*
2	90	38282	115	38282	140	38282	156	1.14
	75		88		115		131	1.19
	50		62		88		106	1.22
	25		35		64		82	1.31
	10		17		39		59	1.17
	Mean		*64*		*90*		*106*	*1.17*
	StdDev		*37*		*38*		*38*	*0.03*
3	90	40570	143	40570	162	40570	179	1.00
	75		116		139		152	1.00
	50		87		111		127	1.11
	25		59		84		98	1.08
	10		38		56		73	0.97
	Mean		*89*		*110*		*125*	*1.00*
	StdDev		*40*		*41*		*42*	*0.06*

http://www.intensiveintervention.org/chart/progress-monitoring

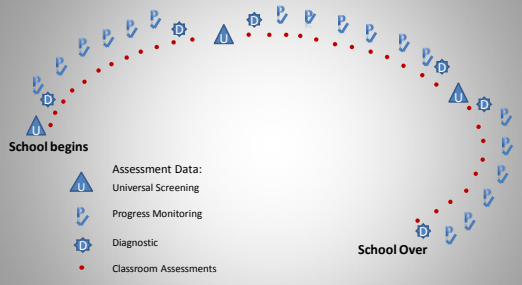
Title	Area	Reliability of the Performance Level Score	Reliability of the Slope	Validity of the Performance Level Score	Predictive Validity of the Slope of Improvement	Disaggregated Reliability and Validity Data
AIMSweb	M-CBM	●	●	●	●	●
AIMSweb	Math Computation	●	●	○	—	—
AIMSweb	Math Concepts and Applications	●	●	●	○	—
AIMSweb	Oral Reading Fluency (R-CBM)	●	●	●	●	●
AIMSweb	Test of Early Literacy - Letter Naming Fluency	●	●	●	●	●
AIMSweb	Test of Early Literacy - Letter Sound Fluency	●	●	●	●	●
AIMSweb	Test of Early Literacy - Nonsense Word Fluency	●	●	●	●	●
AIMSweb	Test of Early Literacy - Phonemic Segmentation Fluency	●	●	●	●	●
AIMSweb	Test of Early Numeracy - Missing Number	●	●	●	●	●
AIMSweb	Test of Early Numeracy - Number ID	●	●	●	●	●
AIMSweb	Test of Early Numeracy - Oral Counting	●	●	●	●	●
AIMSweb	Test of Early Numeracy - Quantity Discrimination	●	●	●	●	●
Curriculum-Based Measurement in Reading (CBM-R)	Letter Sound Fluency	●	●	●	●	—

New to You

How effective is the progress monitoring system at your site?

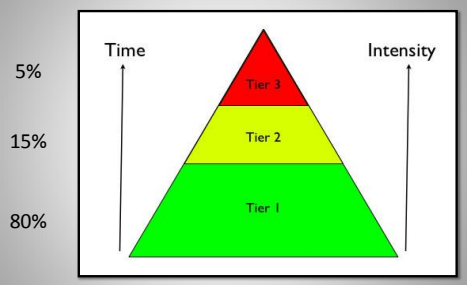
What aspects may need your immediate attention?

Cycle of work at a Glance



Multi-Level Prevention System

RTI begins with quality core instruction and screening



Instruction and Intervention Inventory

Handout 4

Tier 1 Core Instruction

- FOCUS: ALL students
- INSTRUCTION: Instructional materials and instructional practices that are research based; aligned with state standards; and instruction is high quality and incorporates differentiation
- SETTING: Regular education classroom
- ASSESSMENTS: Screening, formative and summative assessments

Tier 1 Instruction - ELA

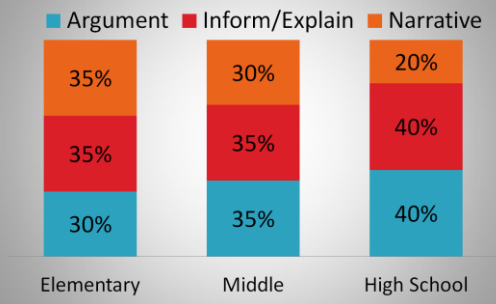
Alaska ELA Standards Require Three Shifts in Literacy

1. Building knowledge through **content-rich nonfiction**
2. Reading, writing, and speaking grounded in **evidence from text**, both literary and informational
3. Regular practice with **complex text** and its **academic language**

Instructional Shifts in Writing

- Increased emphasis through the grades on
  - Analysis of literary and informational texts
  - Argument and evidence
  - Informative/explanatory writing
  - Frequent short, focused research projects
  - Comparison and synthesis of multiple sources
- Decreasing emphasis through the grades on
  - Narrative, especially personal narrative

Balance of student writing parallels NAEP



In the Alaska ELA Standards, writing is treated as an equal partner to reading.

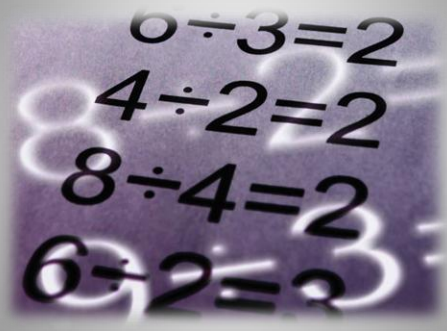
Speaking and Listening

Implications for Instruction

Regard these standards as an invitation to explore, invent and pilot some new ideas.

- Plan for rigorous conversations between students
- Teacher is the facilitator, not the leader
- Engage students in the SL standards all day long

Tier 1 Instruction - Math



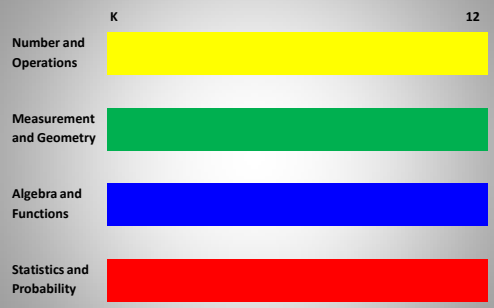
General Shifts in Mathematics

Focus: focus strongly where the standards focus

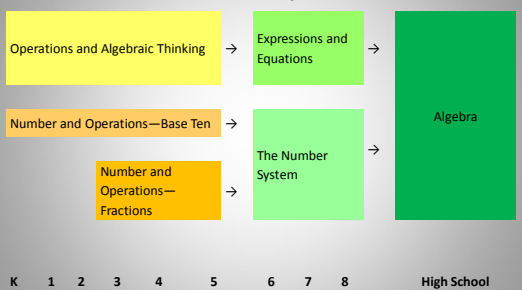
Coherence: think across grades, and link to major topics in each grade

Rigor: in major topics, pursue with equal intensity
- conceptual understanding,
- procedural skill and fluency, and
- applications

Traditional U.S. Approach



Focusing Attention Within Number and Operations



Grouping of Mathematical Practices

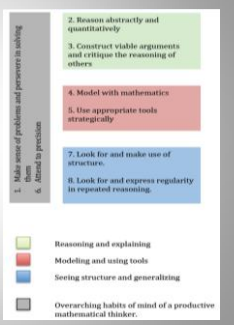
Reasoning and Explaining
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others

Modeling and Using Tools
4. Model with mathematics
5. Use appropriate tools strategically

Seeing Structure and Generalizing
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

Overarching Habits of Mind of a Productive Mathematical Thinker
1. Make sense of problems and persevere in solving them
6. Attend to precision

Adapted from (McCallum, 2011)



New to You

In this first full year of Alaska ELA and Math Standards implementation, how well is core instruction addressing the rigorous expectations in at your site?

Intervention System

The goal of interventions should always be to accelerate learning.

Tier 2

Tier 2

- FOCUS: Students identified through screening as at risk for poor learning outcomes
- INSTRUCTION: Targeted, supplemental instruction delivered to small groups; Instruction is delivered with fidelity (i.e., consistent with the way it was designed)
- SETTING: General education classroom or other general education location within the school
- ASSESSMENTS: Progress monitoring, diagnostic

Tier 2 Instruction

- Evidence-based
- Aligns with and supports core instruction
- Implementation fidelity based on developer guidelines
- Delivered by well-trained staff in optimal group sizes
- Decisions are based on valid and reliable data and criteria are implemented accurately
- Supplements core instruction

Key Questions About the Tier 2 Intervention

- Has the student been taught using an evidence-based secondary intervention program (if available) that is appropriate for his or her needs?
- Has the program been implemented with fidelity?
  - Content
  - Dosage/schedule
  - Group size
- Has the program been implemented for a sufficient amount of time to determine response?

NCII's Intervention Tools Chart Provides Reviews of Secondary Intervention Programs

http://www.intensiveintervention.org/resources/tools-charts

Intensifying Tier 2 Interventions

- Decrease group size.
- Increase frequency or duration of sessions.
- Change interventionist to someone with greater expertise.
- Break tasks into smaller steps, compared to less intensive levels of instruction or intervention.
- Provide concrete learning opportunities (including role play and use of manipulatives).
- Use explicit instruction and modeling with repetition to teach a concept or demonstrate steps in a process.

Tier 2 Intervention Program: Student Example—Kelsey

Background: Kelsey presented serious reading problems, reading at an early second-grade level at the beginning of fourth grade.

Intervention program: Kelsey's teacher selected a research-validated program that addressed phonological awareness, word study, and fluency skills.

Tier 2 Intervention Program: Kelsey

Fidelity

- Group size: six students
- Session length: 20–40 minutes per session
- Frequency: three to four sessions per week
- Program duration: seven weeks
- Instructional content and delivery: explicit instruction covering all components laid out in the instruction manual
- Progress monitoring: R-CBM

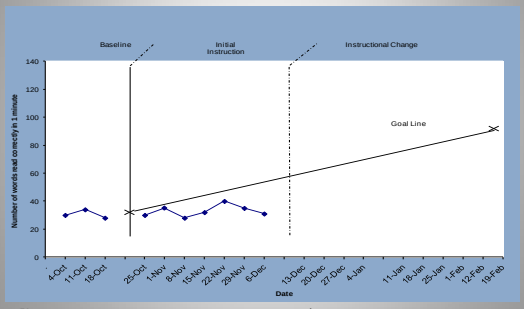
Progress Monitoring:

Reliable and valid tool: Kelsey's teacher implemented progress monitoring using R-CBM assessments that were a match for her reading skills.

Detect improvement: This progress monitoring tool is appropriate to her skill level, allowing her teacher to detect changes in Kelsey's reading.

Rate of progress: Based on Kelsey's progress monitoring graph, she was not progressing at the rate needed to meet her goal.

Progress Monitoring: Kelsey's Reading



Intervention Adaptation/Change

Consider two types of intervention change:

- Quantitative changes to setting or format
- Qualitative changes to delivery

Try quantitative change(s) first…

- **Increase** intervention frequency, length of sessions, or duration.
- **Decrease** group size.

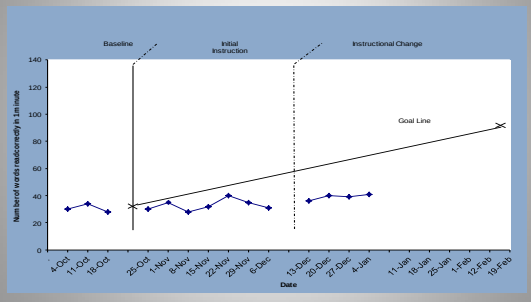
Consider qualitative changes second…

- Instruction based on learner characteristics (e.g., addressing working memory or attention problems)
- Skill level of interventionist
- Content delivery
- How students respond
- The amount of adult feedback and error correction students receive
- Frequency/specificity of checks for retention
- The materials, curriculum, or whole intervention (could be a complete change in program)

Quantitative Intervention Adaptation: Kelsey

Kelsey's teacher intensified her instruction by adding an additional 15 minutes of instruction per session. Despite this change in intervention length, Kelsey continued to make insufficient progress.

Kelsey's Progress Monitoring Graph



Informal Diagnostic Assessment

- Progress monitoring assessments help teams determine *when* an instructional change is needed.
- Informal diagnostic assessments allow teams to use data to help determine the *nature* of the intervention change needed.

Informal Diagnostic Assessment: Kelsey

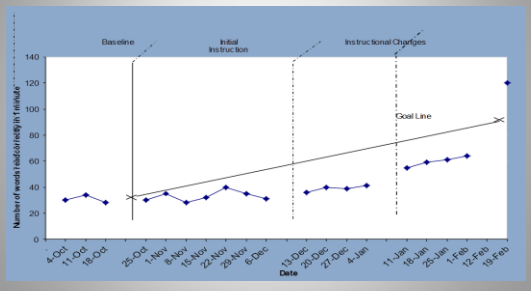
- To determine the nature of the instructional change needed, Kelsey's teacher conducted an error analysis of Kelsey's most recent R-CBM data.
- She also administered a phonics survey to determine Kelsey's decoding strengths and weaknesses.

Intervention Adaptation: Kelsey

Diagnostic assessment showed that Kelsey had difficulty applying decoding strategies to vowel teams. Her teacher applied the following intensive intervention principles to intensify her decoding instruction:

- Incorporated fluency practice of newly taught teams, with specified mastery criteria
- Provided explicit instruction and error correction
- Frequently checked for retention with reteaching as needed

Progress Monitoring: Kelsey's Reading



Evaluation of Kelsey's Progress

- Kelsey's reading is improving but not fast enough to achieve her goal. Another instructional change may be needed.
- Kelsey's teacher may collect additional diagnostic data if needed to make an informed instructional change.
- Kelsey's teacher will continue to collect progress monitoring data and meet with the intervention team to evaluate progress and modify the plan as needed.

Tier 3

Tier 3

- FOCUS: Students who have not responded to core instruction or Tier 2 intervention
- INSTRUCTION: Intensive, supplemental instruction delivered to small groups or individually
- SETTING: General education classroom or other general education location within the school
- ASSESSMENTS: Progress monitoring, diagnostic

Who needs intensive intervention?

- Students with disabilities who are not making adequate progress in their current instructional program
- Students who present with very low academic achievement and/or high-intensity or high-frequency behavior problems
- Students in a tiered intervention program who have not responded to Tier 2intervention programs delivered with fidelity

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Tier 3 Instruction

- Evidence-based or based on validated progress monitoring methods for individualizing instruction
- More intense than Tier 2
- Implementation fidelity
- Delivered by well-trained staff in optimal group sizes
- Decisions are based on valid and reliable data, and criteria are implemented accurately.
- Address general education curriculum in appropriate manner for students.

Before Implementing Tier 3

✓ The student's Tier 2 instruction is an appropriate match for his or her needs.

✓ The instruction has been delivered for a sufficient amount of time to determine response.

✓ The instruction has been delivered as planned—for example, if the intervention is supposed to take place for 30 minutes three times per week, did that *actually* happen?

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Examining the Evidence Base

- Type/Source
- Population
- Desired Outcomes

NCII Interventions Tools Chart
http://www.intensiveintervention.org/chart/instructional-intervention-tools

What Works Clearinghouse
http://ies.ed.gov/ncee/wwc/findwhatworks.aspx

Best Evidence Encyclopedia
http://www.bestevidence.org/

What If Evidence-Based Interventions Aren't Available?

- Use them *when available* and consider augmenting current offerings, if feasible.
- Also consider:
  - Remediation materials that came with your core program materials
  - Expert recommendations (if evidence-based programs are not available)
  - Standards-aligned materials

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Handouts 5-8

How can these resources be utilized at your site?

A Word About Fidelity

What Is Fidelity?

Degree to which the program is implemented the way intended by program developer.

- **Fidelity = Consistency and Accuracy**
- **Fidelity = Integrity**

Gersten et al., 2005; Mellard & Johnson, 2007; Sanetti & Kratochwill, 2009

Why Is Fidelity Important?

- Ensures that instruction has been implemented as intended
- Allows us to link student outcomes to instruction
- Helps in the determination of intervention effectiveness and instructional decision-making (Pierangelo & Giuliani, 2008)

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Five Elements of Fidelity

Student Engagement: How engaged and involved are the students in this intervention or activity?

Program specificity: How well is the intervention defined and different from other interventions?

Adherence: How well do we stick to the plan, curriculum, or assessment?

Exposure/Duration: How often does a student receive an intervention? How long does an intervention last?

Quality of Delivery: How well is the intervention, assessment, or instruction delivered? Do you use good teaching practices?

(Dane & Schneider, 1998; Gresham et al., 1993; O'Donnell, 2008)

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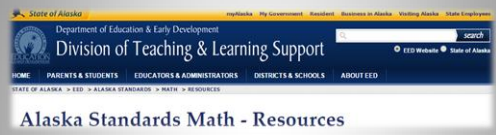
New to You

Think about this expanded view of fidelity

Identify one strength and one area to be improved in the delivery of Tier 2 or Tier 3 interventions at your site.

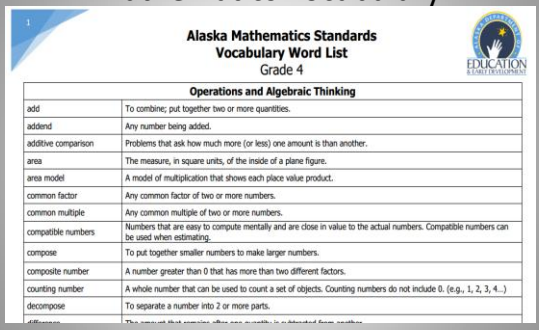
Planning
Standards-Aligned
Instruction
in an RTI System

Alaska Mathematics Resources



- Number Talks by Sherry Parish (K-5)
- Number Routines & Mental Math Strategies
  – (San Diego Schools, Secondary)

Mathematics Vocabulary

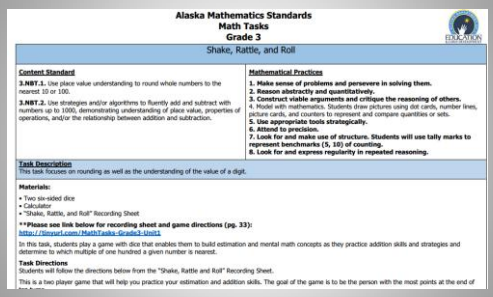


Alaska Mathematics Standards
Vocabulary Word List
Grade 4

Operations and Algebraic Thinking	
add	To combine; put together two or more quantities.
addend	Any number being added.
additive comparison	Problems that ask how much more (or less) one amount is than another.
area	The measure, in square units, of the inside of a plane figure.
area model	A model of multiplication that shows each place value product.
common factor	Any common factor of two or more numbers.
common multiple	Any common multiple of two or more numbers.
compatible numbers	Numbers that are easy to compute mentally and are close in value to the actual numbers. Compatible numbers can be used when estimating.
compose	To put together smaller numbers to make larger numbers.
composite number	A number greater than 0 that has more than two different factors.
counting number	A whole number that can be used to count a set of objects. Counting numbers do not include 0. (e.g., 1, 2, 3, 4…)
decompose	To separate a number into 2 or more parts.

http://education.alaska.gov/akstandards/math/mathvocbygrade.html

Math Tasks (EED Resource)



Alaska Mathematics Standards
Math Tasks
Grade 3

Shake, Rattle, and Roll

Content Standard

3.NBT.1. Use place value understanding to round whole numbers to the nearest 10 or 100.

3.NBT.2. Use strategies and/or algorithms to fluently add and subtract with numbers up to 1000, demonstrating understanding of place value, properties of operations, and/or the relationship between addition and subtraction.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics. Students draw pictures using dot cards, number lines, picture cards, and counters to represent and compare quantities or sets.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure. Students will use tally marks to represent benchmarks (5, 10) of counting.
8. Look for and express regularity in repeated reasoning.

Task Description
This task focuses on rounding as well as the understanding of the value of a digit.

Materials:
- Two six-sided dice
- Calculator
- "Shake, Rattle, and Roll" Recording Sheet

****Please see link below for recording sheet and game directions (pg. 33):**
http://tinyurl.com/MathTasks-Grade3-Unit1

In this task, students play a game with dice that enables them to build estimation and mental math concepts as they practice addition skills and strategies and determine to which multiple of one hundred a given number is nearest.

Task Directions
Students will follow the directions below from the "Shake, Rattle and Roll" Recording Sheet.
This is a two player game that will help you practice your estimation and addition skills. The goal of the game is to be the person with the most points at the end of

http://education.alaska.gov/akstandards/math/resources/Math_Tasks_Grade_3.pdf

Instructional
Considerations

INTENSIVE INTERVENTIONS FOR STUDENTS STRUGGLING IN READING AND MATHEMATICS
A Practice Guide

Research-based guidance that reflects "best practices" for intensifying instruction in reading and mathematics for students with significant learning difficulties in K-12, including students with disabilities.

4 Considerations

- Supporting cognitive processes of students
- Intensifying instructional delivery
- Increasing learning time
- Reducing instructional group size.

Recent research about cognitive processing

There are two groups of students whose academic performance is significantly lower than their grade level peers.

Within both of these groups, some students demonstrate difficulties with *cognitive processing that negatively influence their reading and* mathematics performance.

How do cognitive processing difficulties impede academic success?

Many students who struggle academically also have poor memory.

Short term memory

Working memory

How to help …

- Teach self-regulation strategies
- Model problem solving
- Make thinking visible
- Teach students to be metacognitive
- Teach memory-enhancement techniques
- Offer specific feedback

Cognitive Processing: Research Advances

Interventions should combine practices that reduce the impact of processing deficits **with** academic content, not treat them in isolation.

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Intensifying Instructional Delivery

Provides for student response and teacher feedback

Is direct

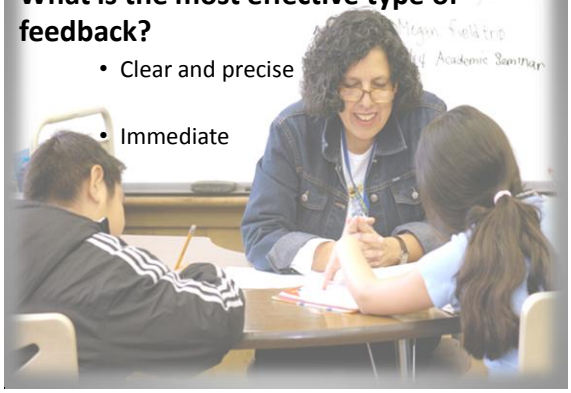
Includes strategy instruction

Is explicit

Is systematic

What is the most effective type of feedback?

- Clear and precise
- Immediate



Independent work?

Yes, but …

Change Dosage or Time

- Minutes per day
- Minutes per session
- Sessions per week
- Total number of sessions

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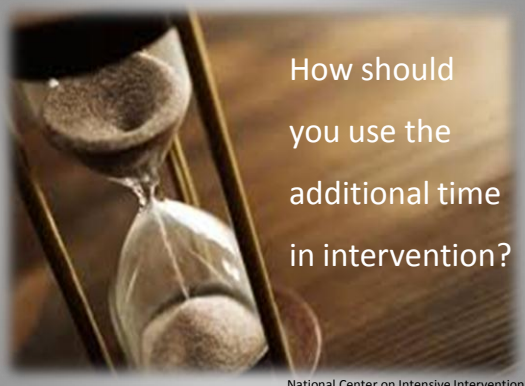

How should you use the additional time in intervention?

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Duration of intensive interventions

- Dependent on many factors
  - Student related
  - School related
- Research suggests that students in K-2 can achieve positive outcomes when participating in interventions up to 20 weeks long. However, some students, particularly students in the upper grades who are several grades behind, may require much longer interventions.

What is the ideal group size for providing intervention?

- Small groups, up to four students, may provide the most intensive intervention at the elementary level.
- Research has not identified one ideal intervention group size that increases outcomes for all or most students, particularly in older students in Grades 6–12.

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New to You

Which of the four considerations needs the most immediate attention at your site?

How will you approach *building capacity* in the school to address this consideration?

Resources for Selecting Interventions

Interventions that are built to resolve the root cause of the student's poor academic performance have been found to produce stronger effects.

Daly, Martens, Hamler, Dool & Eckert, 1999; Graham, Harris, & MacArthur, 2004.

Effective Intervention Practices

Interventions with strong effects consistently:

- Correctly target the student's deficit
- Provide explicit instruction in the skill
- Provide an appropriate level of challenge
- Allow for sufficient repetition for the skill to be retained
- Utilize immediate corrective feedback

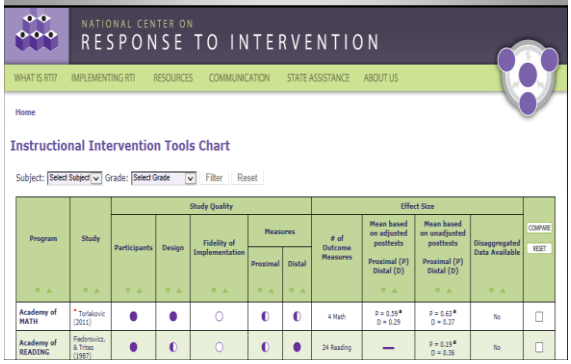
Burns, VanDerHeyden & Boice, 2008

Selecting the wrong intervention commonly occurs when those making intervention selections do not have adequate data on student learning and capability.

- Which interventions are readily available to the teacher.
- Which interventions are familiar.
- Which interventions require the least amount of time or expertise.

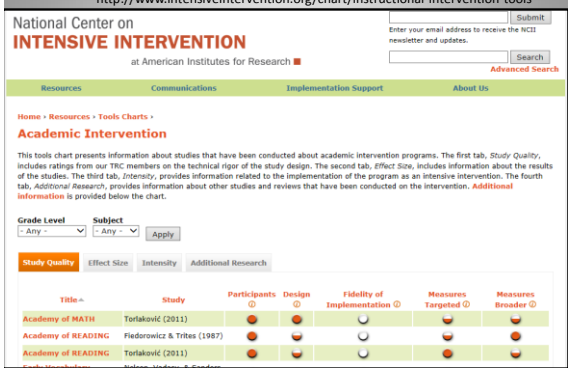
Instructional Interventions Tools Chart

http://www.rti4success.org/instructionTools

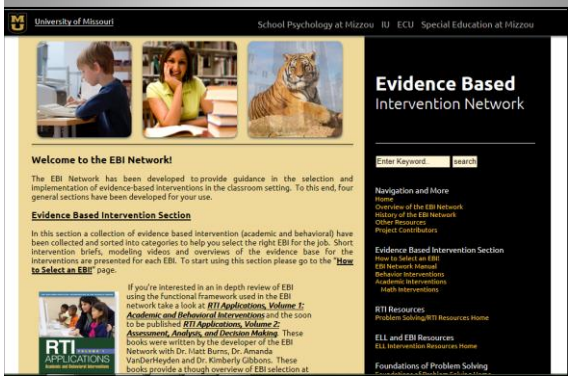


Academic Interventions Tools Chart

http://www.intensiveintervention.org/chart/instructional-intervention-tools



Evidence Based Intervention Network



Designing and Delivering Intensive Interventions:

A Teacher's Toolkit

This toolkit provides activities and resources to assist practitioners in designing and delivering intensive interventions in reading and mathematics for K–12 students with significant learning difficulties and disabilities.

The tools provide both important information (summarized from *Intensive Interventions for Students Struggling in Reading and Mathematics*) and broad guidance to help practitioners learn about, plan for, implement, reflect on, and refine their delivery of intensive interventions.

Structured Dialogue

What specific action(s) might we take that will help us become more **strategic** and **intentional** with our RTI system?

Structured Dialogue-Sort and Elaborate Directions

Individuals

1. Using the 3-5 post-it ideas you created.

Table Groups

2. When all are ready, one person places a note in the center of the table saying, "This make sense to me because…"
3. Another person places a note connecting to the first saying, "This makes sense to me because…and it relates to the first one in these ways…"
4. Repeat the pattern, or start a new pattern when you need a new thread of thinking

In Closing…

Teaching all students requires a school level system for early identification of at-risk students and a school level system for providing those students with the most effective interventions.