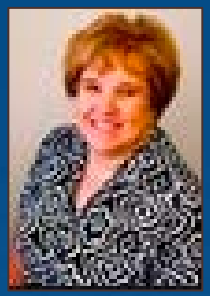
Multi-Tiered System of Support In the Mathematics Classroom



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February 24, 2015

Making Systems Work

Lori Van Houten

REL West at WestEd

Do you follow recipes?

“Every system is perfectly designed to get exactly the results it gets”

Berwick (1996)

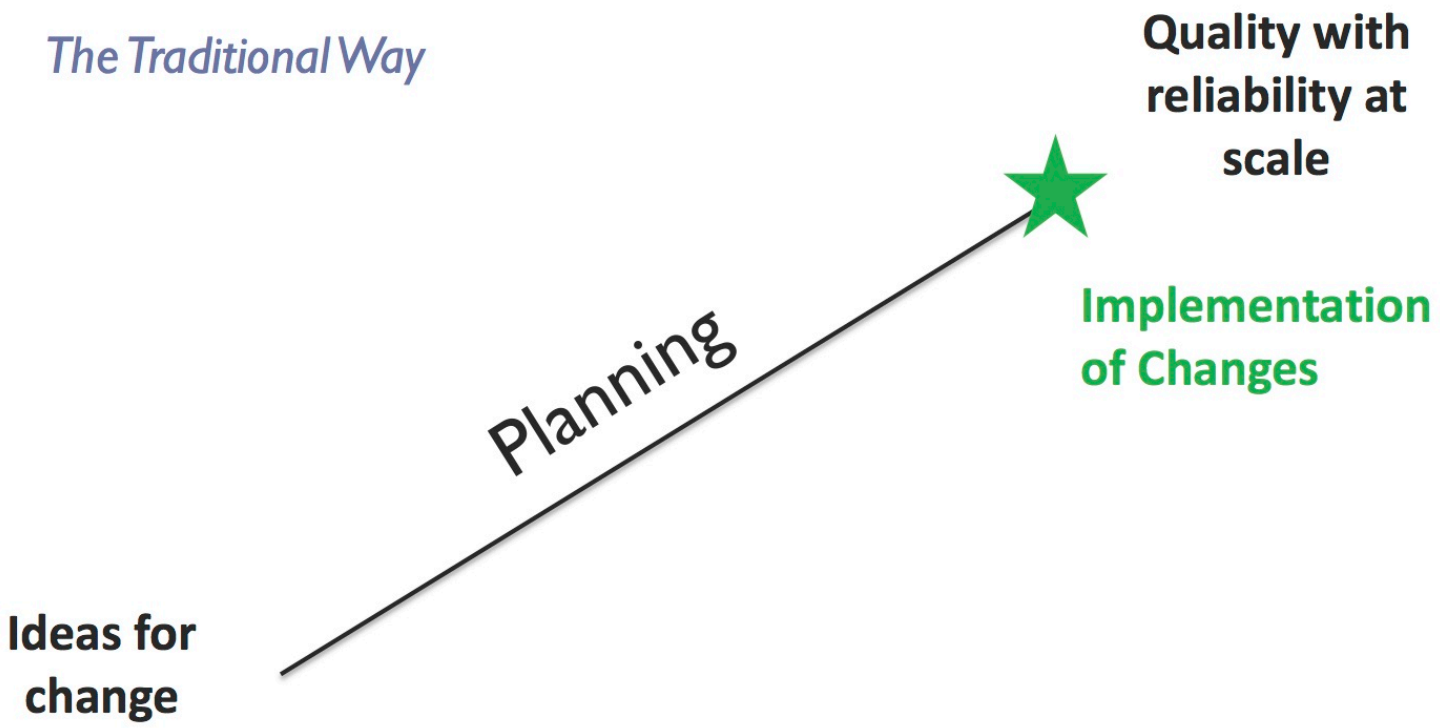
Shared Goal

- Improvement reliably at scale
- Understand what works for whom and under what conditions
- *Learning Fast to Implement Well to Achieve Quality Reliably at Scale*

- Tony Bryk Mantra, Fall 2014

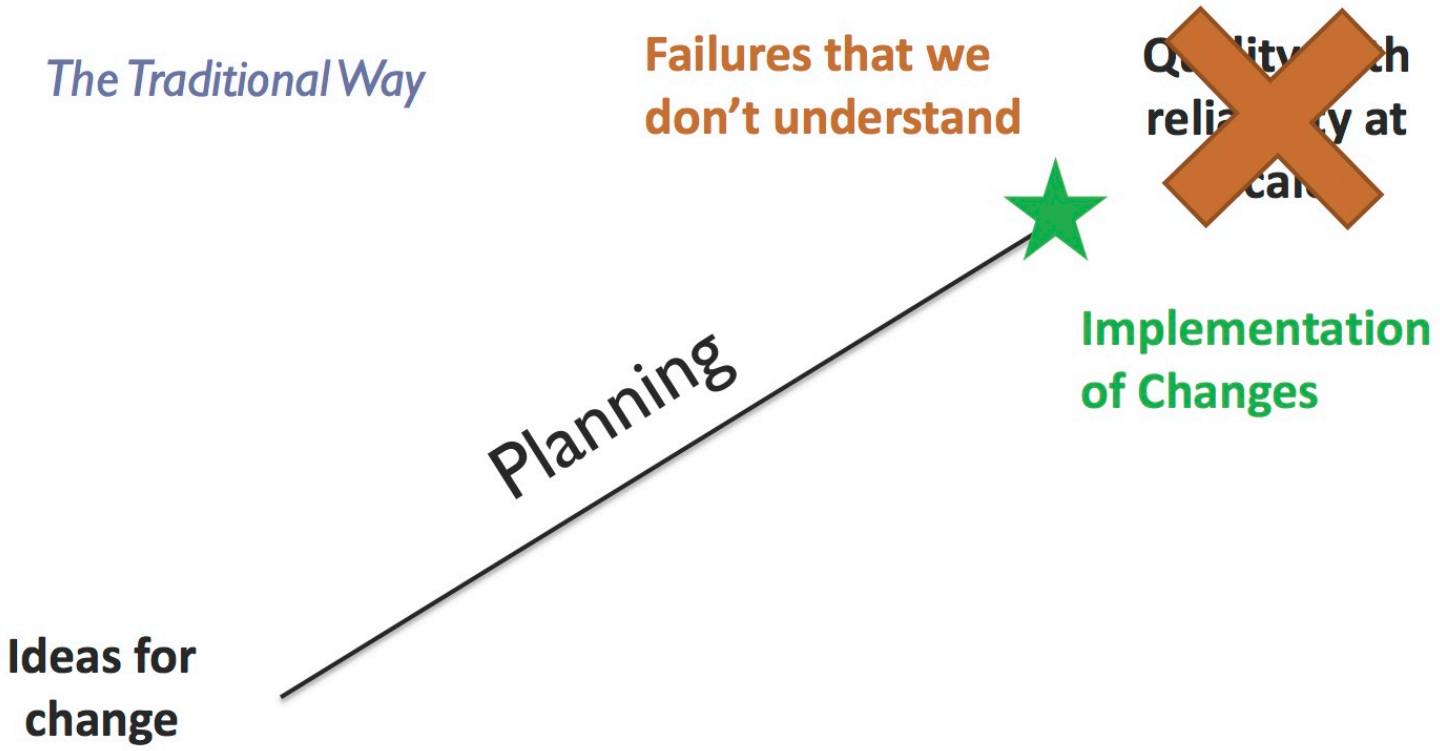
How Do We Make Change?

The Traditional Way

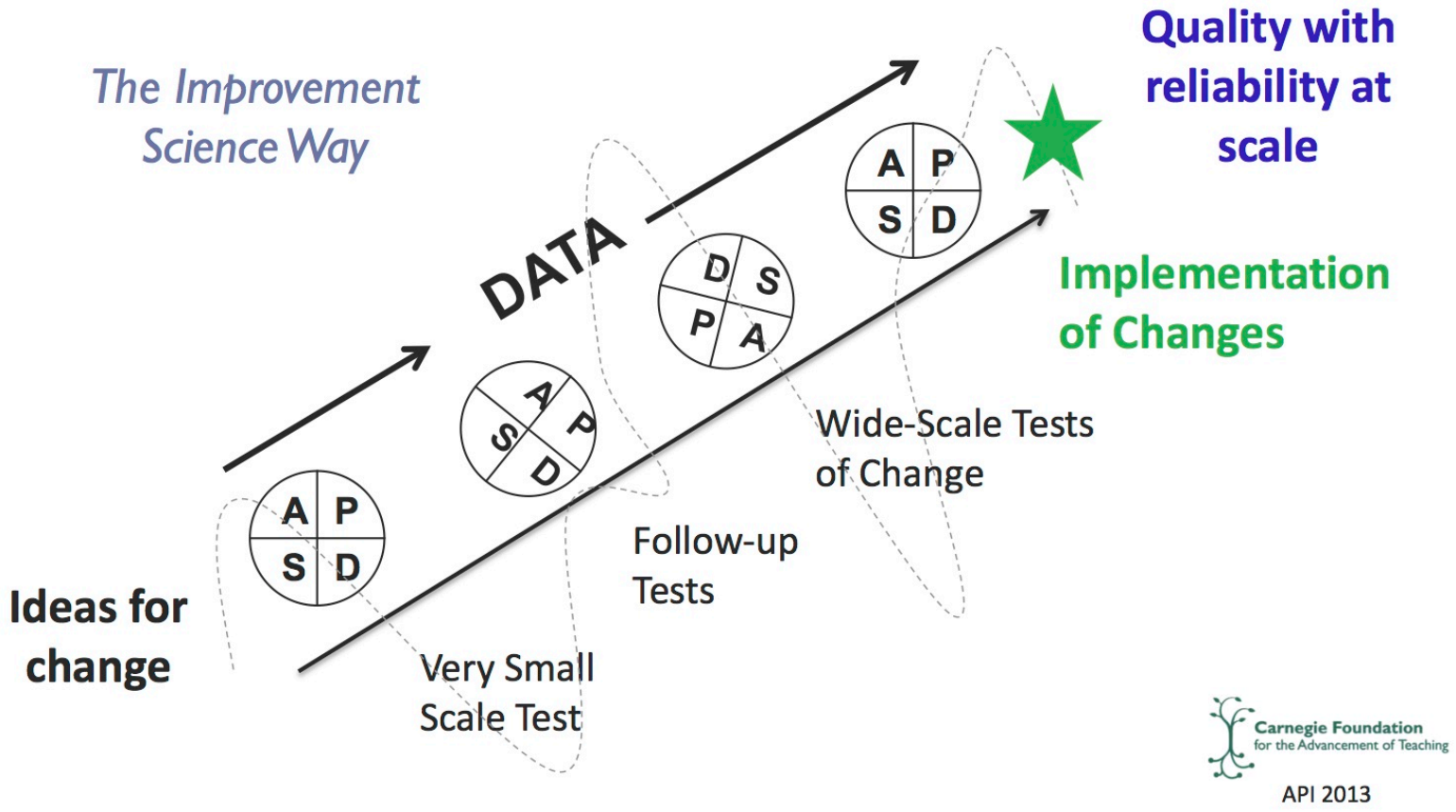


Carnegie Foundation for the Advancement of Teaching

How Do We Make Change?



How Do We Make Change?



Carnegie Foundation for the Advancement of Teaching

API 2013

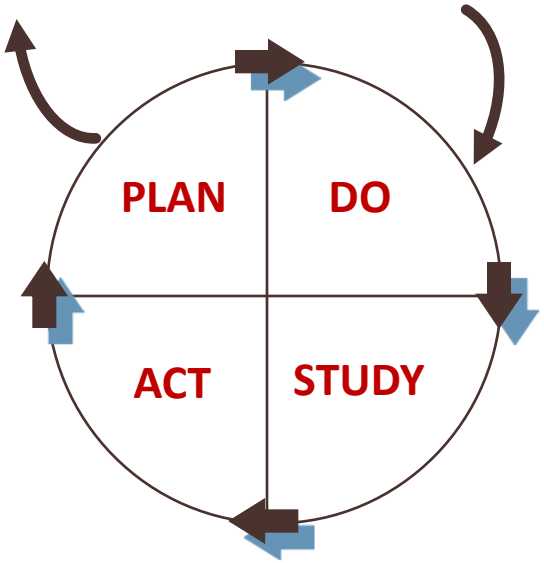
Improvement Science: The Four Questions

What are we trying to accomplish?

How do we understand the problem(s) and system in which they are embedded?

What changes might we introduce?

How will we know that the changes are an improvement?



Making the system work at your school

- Listen for your context.
- Make hunches explicit. Challenge your assumptions.
- Get clear on the problem and system before you go to solutions.
- Maintain a safe environment for the discussion.

MULTI-TIERED SYSTEM OF SUPPORTS IN THE MATHEMATICS CLASSROOM

Becky Unker, M.Ed.
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RTI and MTSS

The phrases “Response to Intervention,”commonly referred to as RTI, and “Multi-Tiered System of Supports,” understandably shortened to MTSS, are used interchangeably among most educators.

What is the Difference between RTI and MTSS?

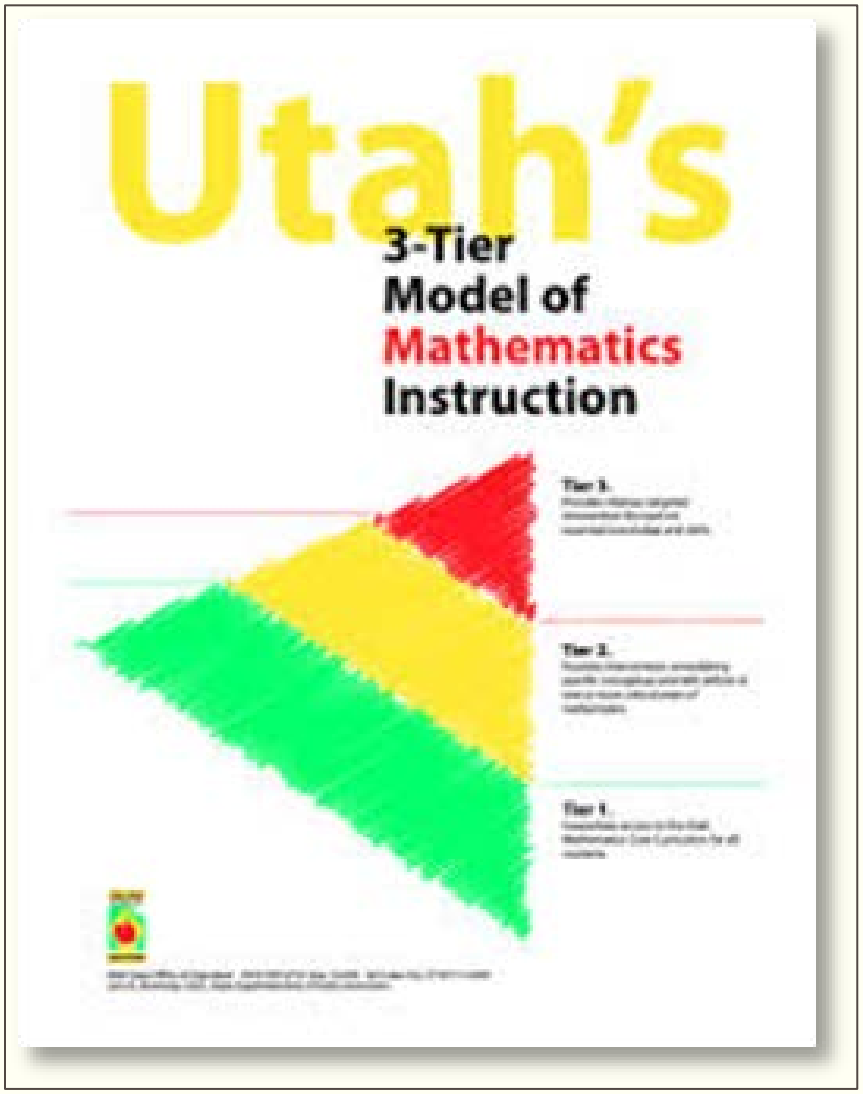
RTI

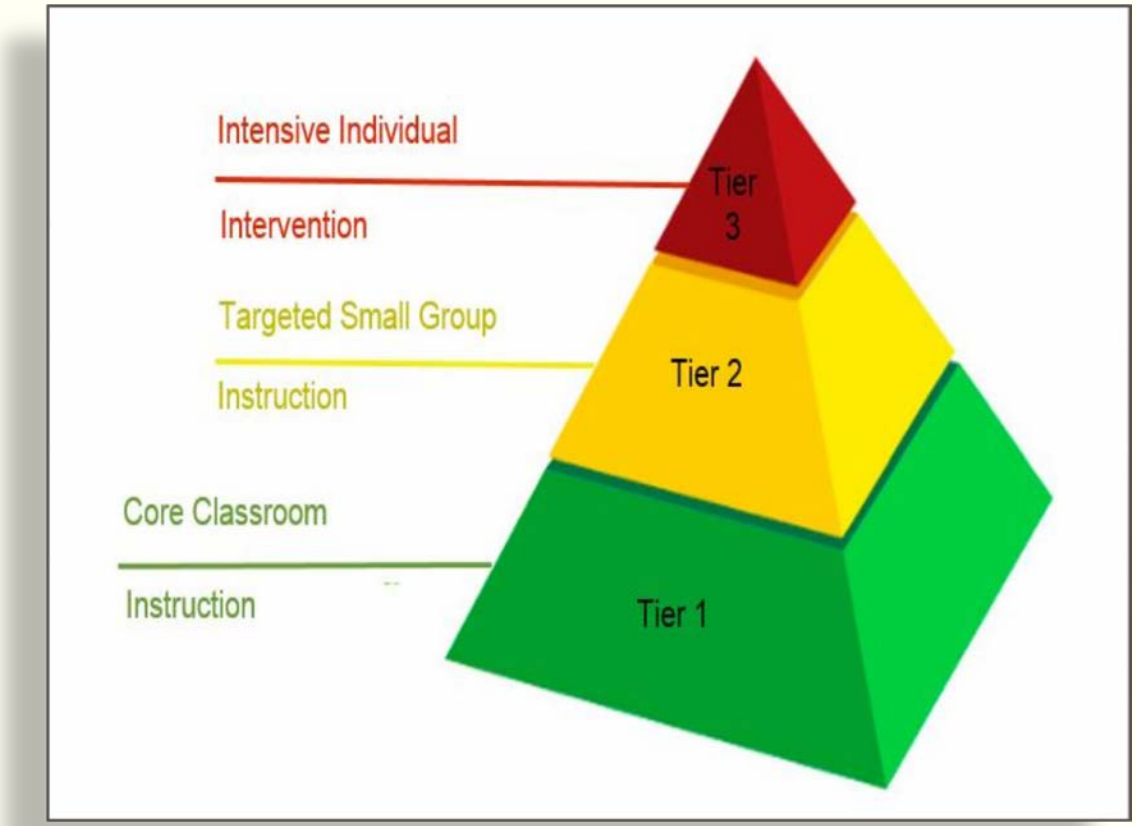
- RTI refers to the practice of providing high-quality, multi-tier instructions and interventions matched to student's needs, monitoring student progress frequently and evaluating data on student progress to determine the need for special education support (Batsche et al., 2005; Fuchs & Fuchs, 2006).
- RTI includes universal screening of all students, multiple tiers of intervention service delivery, problem solving method, and a data collection and assessment system to inform decision at each tier of service delivery.

MTSS

- Emphasis is on schoolwide differentiated universal core instruction at Tier 1 for all students.
- Tier 2 provides supplemental instruction to those students who aren't making adequate progress to the core instruction provided at Tier 1 (Batsche et al., 2005).
- A structured problem-solving process and integrated data-collection system is utilized at each tier of the model.
- In addition to offering a multi-tier approach to assessment and intervention, MTSS integrates a system-wide continuum of supports.

Utah's 3-Tier Model of Mathematics Instruction

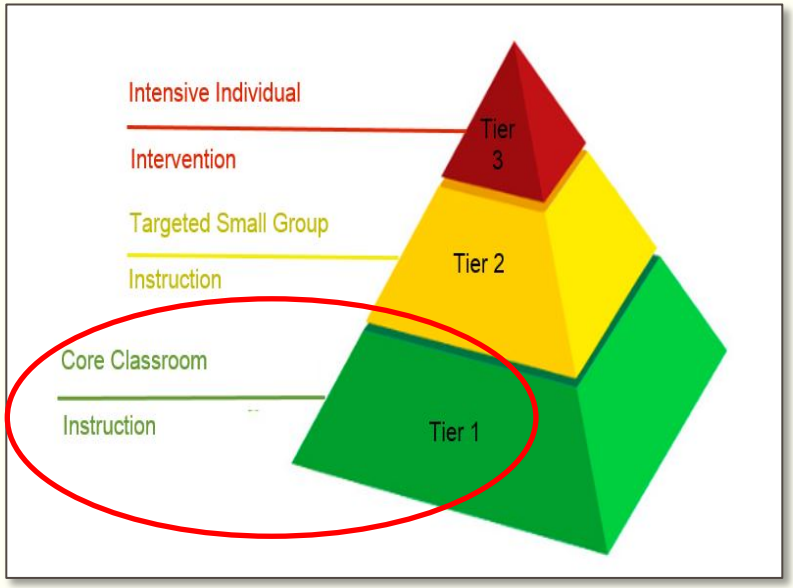




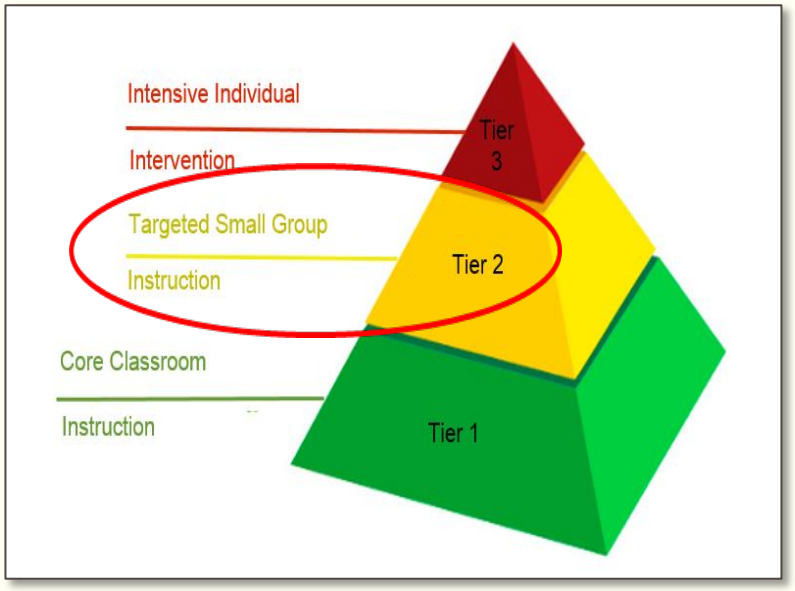
The 3-Tier Model of Mathematics Instruction does not describe students, but rather the instruction needed to help ALL students understand core mathematics ideas and demonstrate mathematics skills.

Utah's 3-Tier Model of Mathematics Instruction

- Tier 1 instruction guarantees access to the core mathematics standards for all students.
- Teachers use curriculum aligned to the Utah Core Standards as well as effective teaching practices, including universal design for learning.
- Frequently collected formative assessment data is used to monitor and maintain ongoing success in mathematics by informing instruction.
- All students take formative and summative assessments to show proficiency and to demonstrate student learning over time.



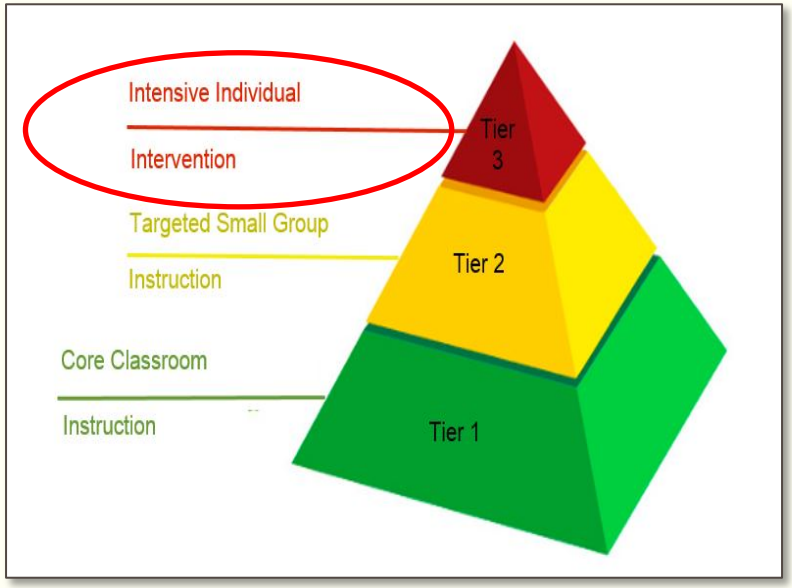
Utah's 3-Tier Model of Mathematics Instruction



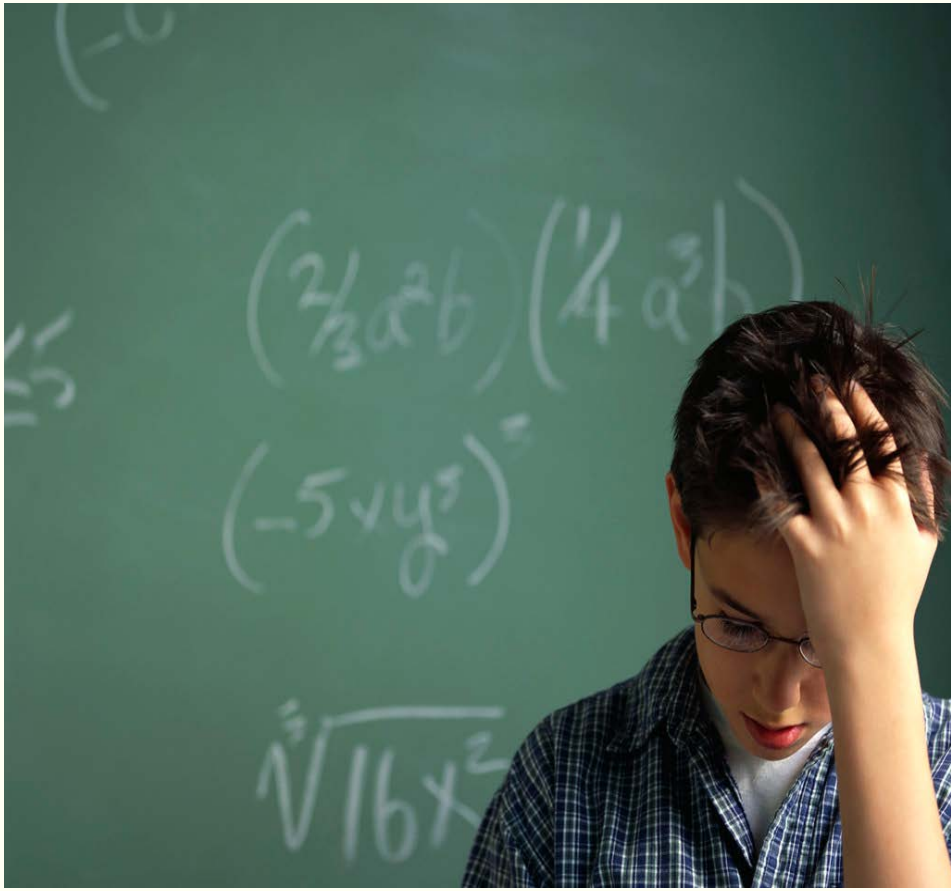
- The purpose of Tier 2 is to provide targeted instruction for students who aren't making adequate progress in Tier 1.
- Instruction targets the specific conceptual and skill deficits, is systematic, explicit and aligned with Tier 1.
- Tier 2 targeted instruction is in addition to the Tier 1 instruction that students receive.

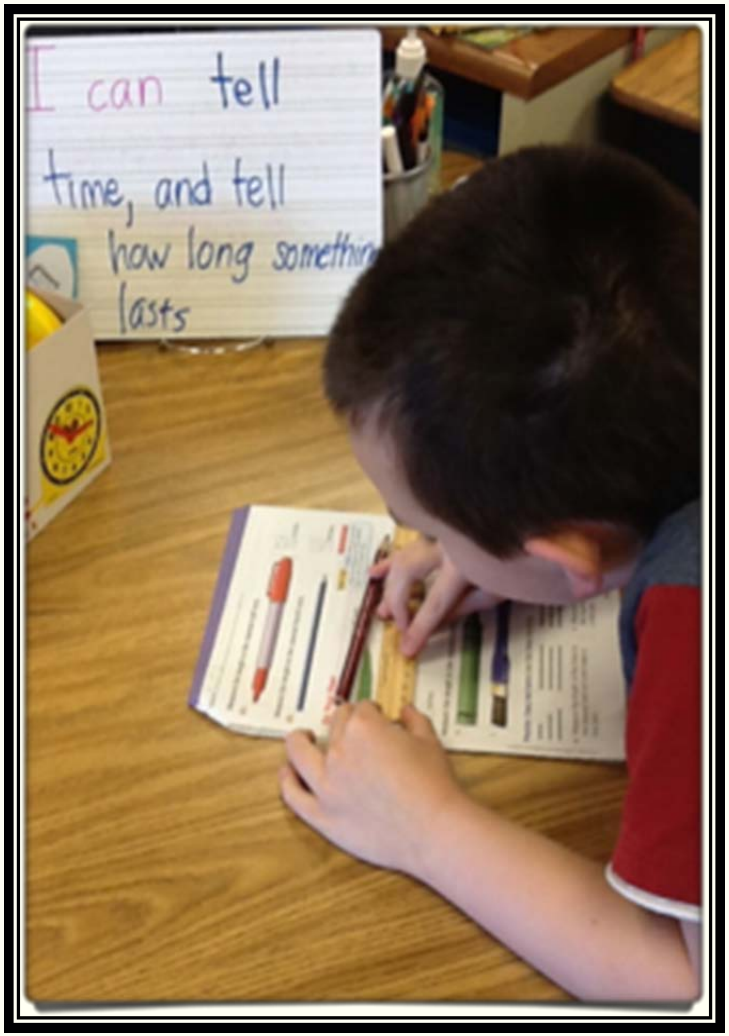
Utah's 3-Tier Model of Mathematics Instruction

- Tier 3 intervention is for students who have not responded successfully to Tier 2 targeted instruction.
- This small percentage of students show severe deficiencies in specific mathematics skills.
- Diagnostic and weekly progress monitoring assessments check progress and identify skill deficits.
- If progress monitoring and diagnostic assessments show a student is not progressing, he/she may be referred for further evaluation and additional services.
- Tier 3 Interventions replace Tier 2 and is in addition to Tier 1 instruction.



IT'S THE INSTRUCTION THAT MATTERS MOST…





"Students need to not only do the math, they need to be able to use the mathematics they are learning."

-William McCullum

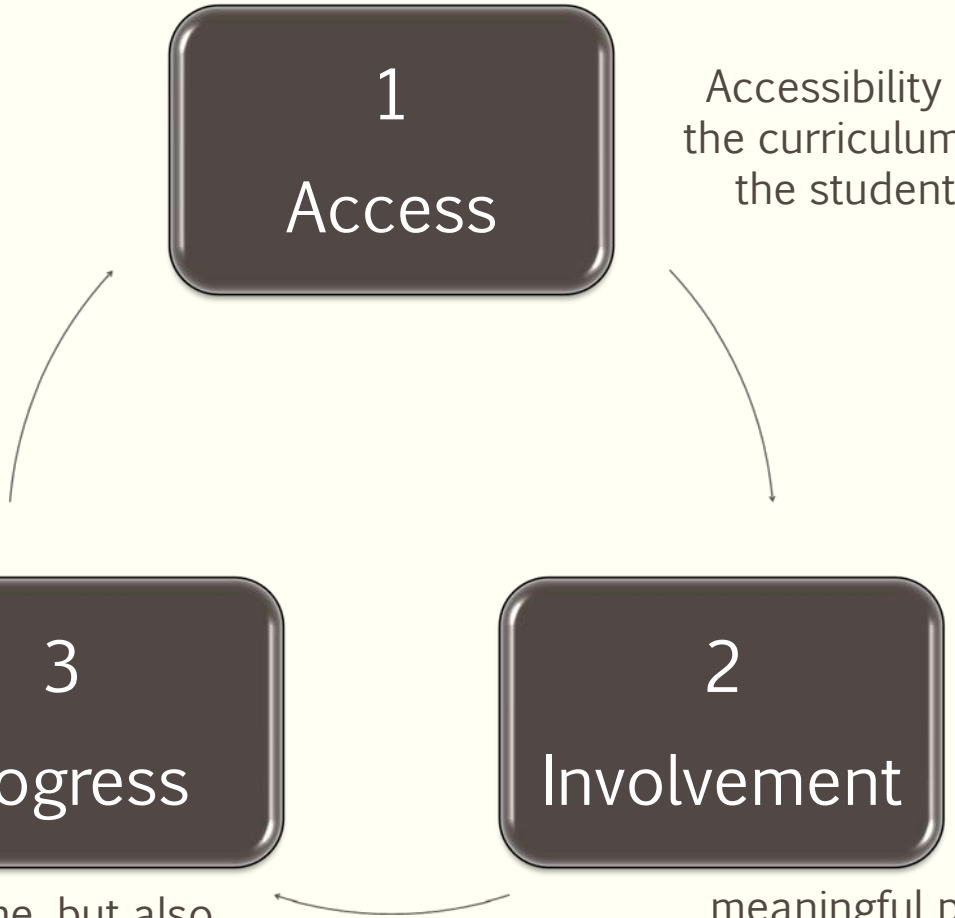
Common Core Standards Lead Author

Congress first introduced the concept of access to the general curriculum in IDEA ‘97 by stating, “Over 20 years of research and experience has demonstrated the education of students with disabilities can be made more effective by having high expectations for such children and *ensuring their access in the general curriculum* to the maximum extent possible”

(Karger, J. 2005)

Beyond these general introductory statements concerning access to the general education curriculum, in other places in the respective reauthorizations, both IDEA ‘97 and IDEA ‘04 specifically require that students with disabilities be involved in and progress in the general education curriculum. Thus, the overall right to have access to the general curriculum can, in fact, be viewed as consisting of three interrelated stages: access, involvement, and progress (Hitchcock et al., 2002).

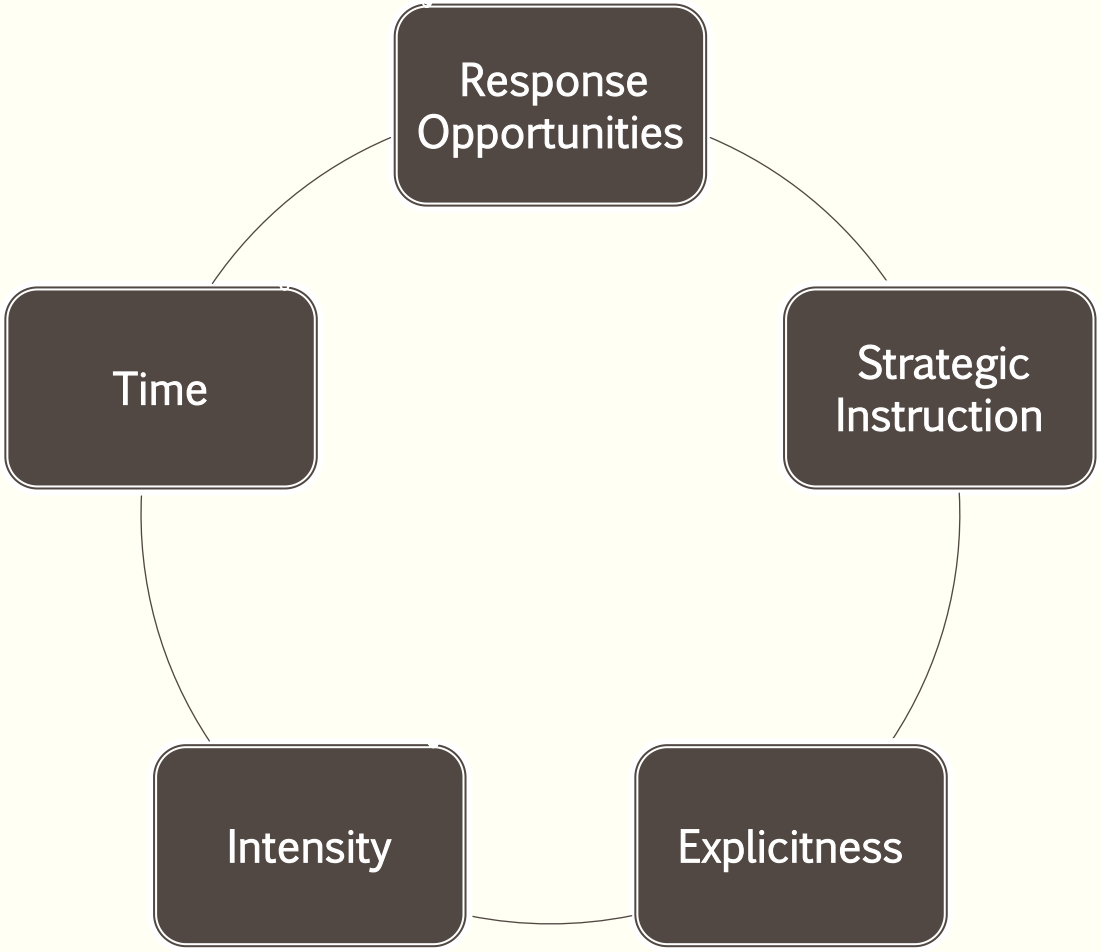
Cycle of Ensuring Access to the General Education Curriculum



Team Time

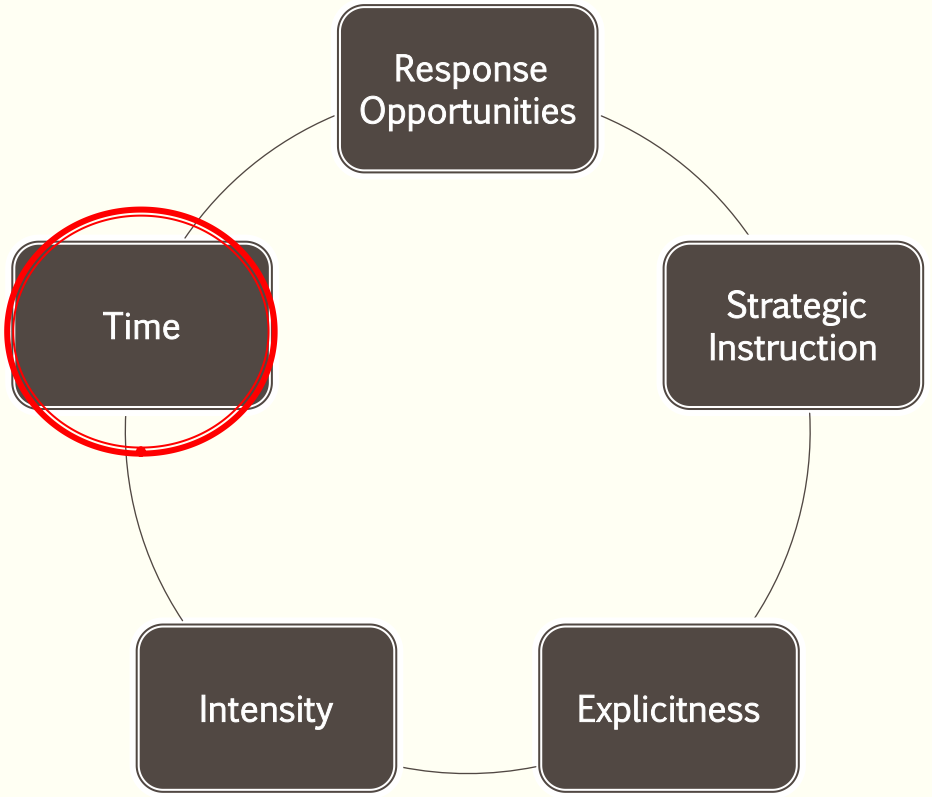
- Discuss with your team how you are doing on ensuring access to the general education curriculum to students with disabilities.
- Does your staff have high expectations of All students?
- Keep in mind the Cycle of Ensuring Access.
- Be ready to share with the rest of the group….remember we are all in this together and can learn from each other.

5 Anchors for Differentiating Tiered Instruction



Instructional Time

- A rationale for why the amount of instructional time is an important anchor for differentiating tiered mathematics instruction is that all students do not develop mathematical understandings at the same rate. Some students may have more foundational mathematical knowledge than other students, which allows them to make connections among mathematics concepts more quickly and efficiently.
- Increasing the time that students have to interact with mathematics will help, in part, to ameliorate the difficulties that some students will invariably have with a pace of instruction they find too quick.

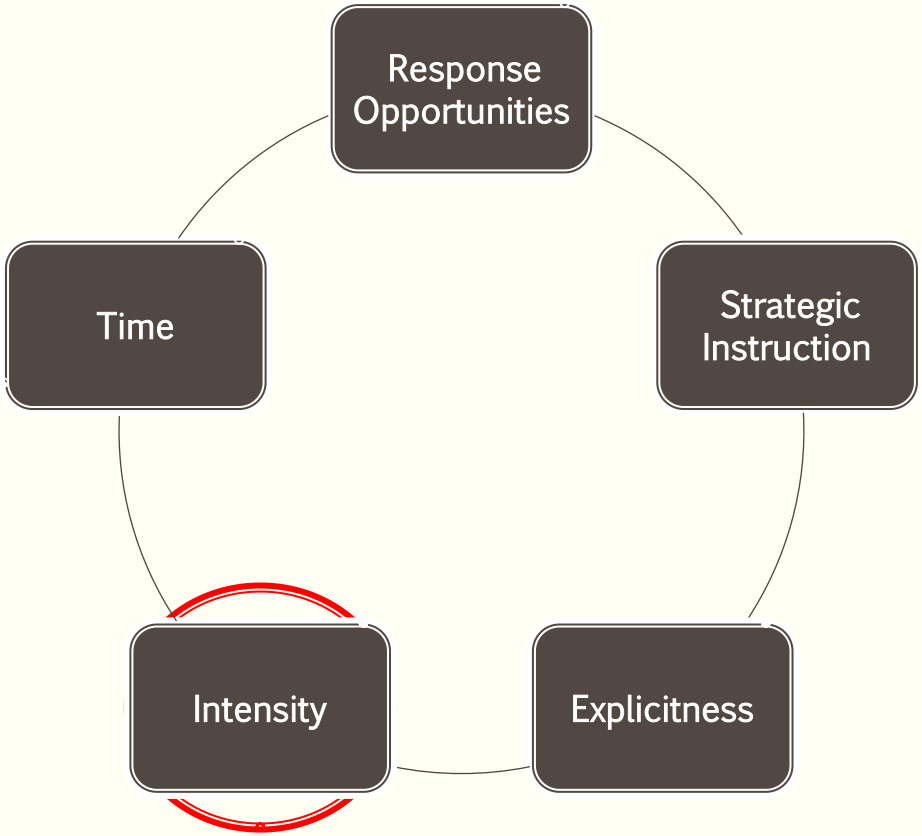


Adapted from: *Mathematics RTI: A Problem-solving Approach to Creating an Effective Model* :David Allsopp, Patricia Alvarez McHatton, Sharon Nichole Estock Ray, Jennie L Farmer; 2010 LRP Publication

Team Time

- Discuss with your team how the anchor of “Instructional Time” looks in your specific school.
- Be ready to share with the rest of the group….remember we are all in this together and can learn from each other.

Instructional Intensity



- Smaller teacher-student ratios can allow for more direct interaction between teacher and student.
- Teachers gain more opportunities to observe students as they do mathematics and to discuss with them their mathematical thinking which will allow greater insight into what individual students might need in terms of instruction.

Adapted from: Mathematics RTI: A Problem-solving Approach to Creating an Effective Model by: David Allsopp, Patricia Alvarez McHatton, Sharon Nichole Estock Ray, Jennie L Farmer; 2010 LRP Publication

Team Time

- Discuss with your team what the anchor of “Instructional Intensity” looks like in your specific school.
- Be ready to share with the rest of the group….remember we are all in this together and can learn from each other.

Instructional Explicitness

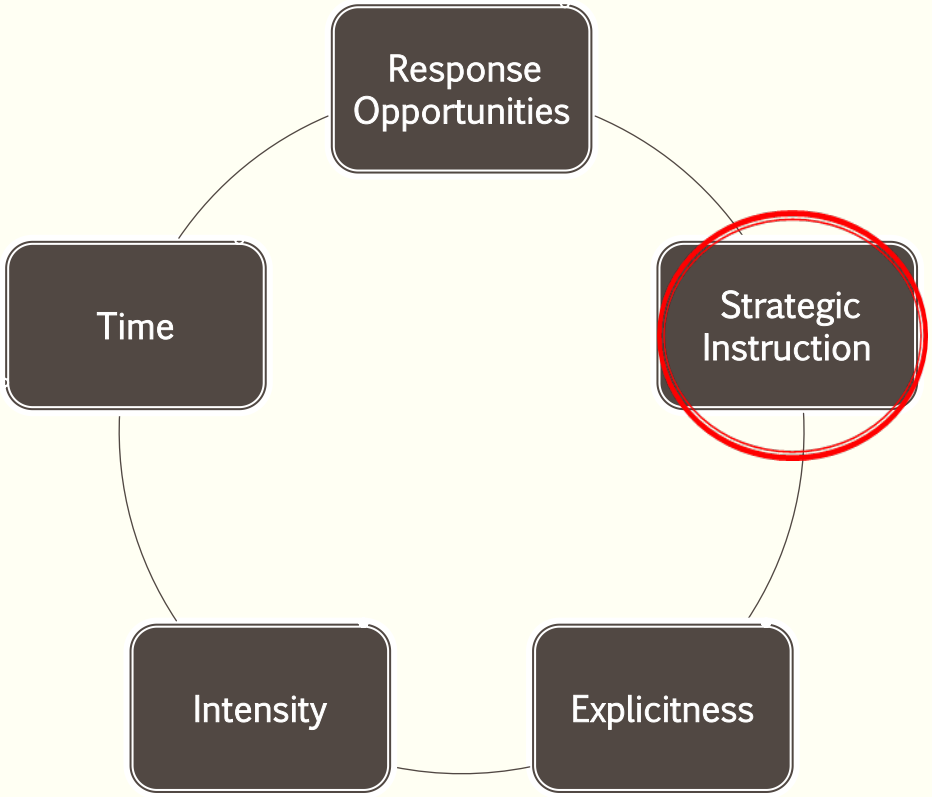
- Students who aren't progressing adequately in mathematics can benefit greatly from instruction that makes mathematical concepts/skills clear and their meaning transparent.
- Explicit instruction has to do with determining the most important and distinct features of a concept and highlighting them through multisensory methods so that students can clearly and meaningfully access them cognitively.
- Examples of explicit mathematics instructional practices include: a concrete-to-representational-to-abstract sequence of instruction (CRA), building meaningful student connections, modeling that includes multisensory cuing, and providing structured language experiences.

Adapted from: Mathematics RTI: A Problem-solving Approach to Creating an Effective Model by: David Allsopp, Patricia Alvarez McHatton, Sharon Nichole Estock Ray, Jennie L Farmer; 2010 LRP Publication

Team Time

- Discuss with your team how the anchor of “Instructional Explicitness” looks in your specific school.
- Be ready to share with the rest of the group….remember we are all in this together and can learn from each other.

Emphasis on Strategic Instruction



- Competence with mathematics requires the ability to problem solve. Problem solving is a metacognitive activity that incorporates strategic thinking.
- Students who aren't progressing adequately may not be approaching mathematics in strategic ways.
- Students can learn to become more metacognitively aware when they are directly taught problem solving strategies and have supported opportunities to use them.

Adapted from: Mathematics RTI: A Problem-solving Approach to Creating an Effective Model by: David Allsopp, Patricia Alvarez McHatton, Sharon Nichole Estock Ray, Jennie L Farmer; 2010 LRP Publication

Team Time

- Discuss with your team how the anchor of “Strategic Instruction” looks in your specific school.
- Be ready to share with the rest of the group….remember we are all in this together and can learn from each other.

Number and Nature of Response Opportunities

- An important factor in building mathematical proficiency is the extent to which students have many opportunities to use newly learned concepts/skills and can explain how they solved the problem and justify their methods in mathematical terms.
- Emphasizing active and meaningful response opportunities for students can provide them an effective process for fully understanding and becoming proficient with mathematics concept/skill.
- The more opportunities a student has to respond to a particular mathematics task, the more likely it is that the underlying neural connections that process learning of the targeted mathematics will be strengthened.

Adapted from: Mathematics RTI: A Problem-solving Approach to Creating an Effective Model by: David Allsopp, Patricia Alvarez McHatton, Sharon Nichole Estock Ray, Jennie L Farmer; 2010 LRP Publication

Team Time

- Discuss with your team how the anchor of “Response Opportunities” looks in your specific school.
- Be ready to share with the rest of the group….remember we are all in this together and can learn from each other.

Resources

- Mathematics RTI: *A Problem-Solving Approach to Creating an Effective Model.* David Allsopp, Patricia Alvarez McHatton, Sharon Nichole Estock Ray, Jennie L. Farmer.
- Utah's 3-Tier Model of Mathematics Instruction.
- *Understanding RTI in Mathematics; Proven Methods and Applications.* Russell Gersten and Rebecca Newman-Gonchar.
- Multi-tier System of Supports; The RTI and PBIS approaches involve targeting specific areas in which students are struggling. Orla Higgins Averill and Claudia Rinaldi; *District Administration*, September 2011.
- *Access to the general education curriculum for students with disabilities: a discussion of the interrelationship between IDEA'04 and NCLB.* Karger, J. (2005). Wakefield, MA: National Center on Accessing the General Curriculum.

“Every system is perfectly designed to get exactly the results it gets”

- Berwick (1996)

Do try this at home!

1. **Check one focus area. Describe the specific problem we are trying to solve, the system in which it operates, and the evidence that shaped our thinking**:

☐ Time ☐ Intensity ☐ Explicitness ☐ Strategic Instruction ☐ Response Opportunities

2. **State our aim or goal:**

3. **Describe the change that will result in improvement:**

4. **Describe how we'll monitor this change to know it is resulting in improvement:**

Making the System Work at Your School

- Make hunches explicit. Challenge your assumptions.
- Get clear on the problem and system before you go to solutions.
- Be intentional in your development and testing of changes.
- Keep the environment safe for discussion and challenges.

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