


## Reinventing Mathematics Intervention

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Handout:  
<http://www.dnamath.com/presentations/>

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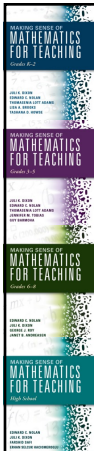
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## Session Goals

- Examine current structures for intervention.
- Explore six features for reinventing intervention.
- Share a plan to initiate the reinvention.

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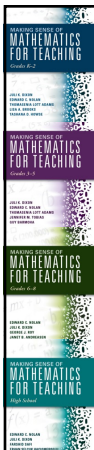
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## Rethinking Intervention

What is the purpose of intervention?

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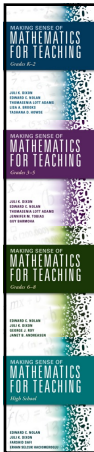
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## Rethinking Intervention

What is the purpose of intervention?

- ✓ Reteach
- ✓ Address gaps in foundational skills

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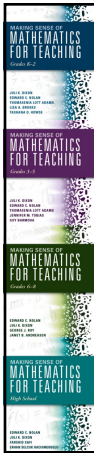
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## Rethinking Intervention

What is the purpose of intervention?

- ✓ Reteach
- ✓ Address gaps in foundational skills

Is this accomplishing your goals?  
Are students succeeding?

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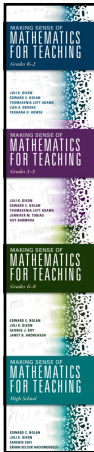
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## Rethinking Intervention

What is the purpose of intervention?

- ✓ Reteach
- ✓ Address gaps in foundational skills
- ✓ Develop conceptual understanding

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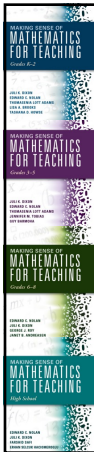
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Why do we intervene?

How do we make intervention purposeful?

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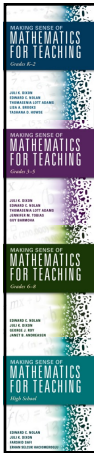
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Six Features for Re-Inventing Intervention

1. Focus on conceptual development.
2. Connect concepts and procedures.
3. Prioritize a strategic selection of content.
4. Support discourse through engaging tasks and targeted questioning.
5. Elicit and linger on common errors.
6. Provide scaffolding just in time rather than just in case.

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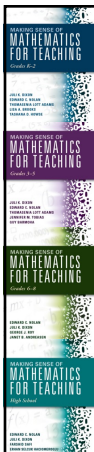
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What strategies might students use to determine the product of  $6 \times 7$  if they did not know it?

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What mathematics is involved in each strategy?

- Drawing
- Counting Strategies
- Multiplicative Reasoning

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Label each strategy as:

- Drawing,
- Counting Strategies, or
- Multiplicative Reasoning

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$6 \times 7$

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Label each strategy as:

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$6 \times 7 = 7 + 7 + 7 + 7 + 7 + 7$

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$6 \times 7 = 7 + 7 + 7 + 7 + 7 + 7$

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Label each strategy as:

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$6 \times 7 = (6 \times 5) + (6 \times 2)$

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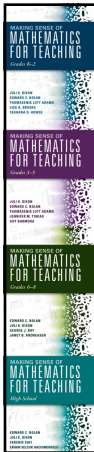
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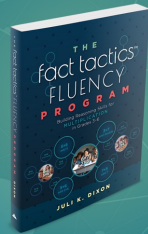

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Support all learners with **math fact fluency**

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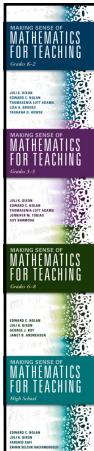
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### Six Features for Re-Inventing Intervention

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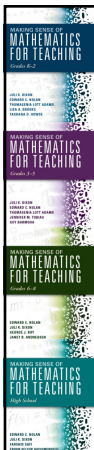
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### Consider this task:

The candy shop at Sweet Tooth Elementary School has 376 candies. If the school orders another 258 candies, how much will the store have then?

How would you use this task to connect concepts and procedures?

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MAKING SENSE OF MATHEMATICS FOR TEACHING  
*the Small Group*

JULI K. DIXON  
LISA A. BROOKS  
MELISSA R. CARLI

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### Purposeful Content

What do we focus on with students who are significantly far behind?

This needs to be a deep conversation.

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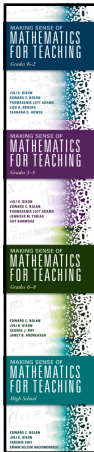
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## Priority Topics

Grades 3-5	Grades 6-8
<ul style="list-style-type: none"> <li>Meaning of Operations</li> <li>Fact Strategies (for addition and multiplication)</li> <li>Multidigit Addition &amp; Subtraction</li> <li>Place Value</li> </ul>	<ul style="list-style-type: none"> <li>Multidigit Multiplication &amp; Division</li> <li>Fractions/Decimals Concepts &amp; Operations</li> <li>Rates &amp; Ratios</li> <li>Integer Concepts &amp; Operations</li> <li>Equivalent Expressions</li> </ul>

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## Discourse Norms

- Provide explanations and justifications with solutions.
- Make sense of others' solutions.
- Communicate when you don't understand or don't agree.

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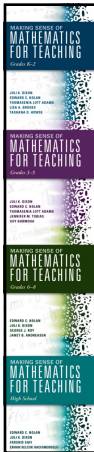
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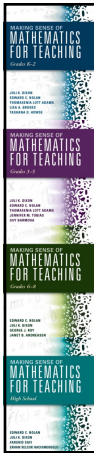
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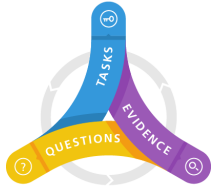
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## Plan with the TQE Process in Mind



- **Tasks** connect to learning goals and help identify students' errors.
- **Questions** elicit mathematical understandings and common errors.
- **Evidence** drives scaffolding and guides extensions.

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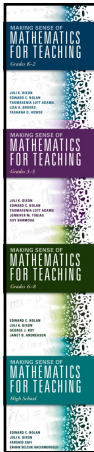
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## Choose just the right tasks you know students will get wrong.

Brandon shared 4 cookies equally between himself and his 4 friends. He started by giving each person (including himself) a half of a cookie. What could he have done next?

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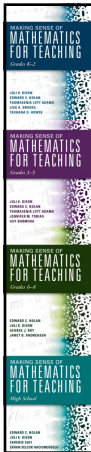
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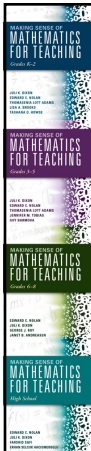
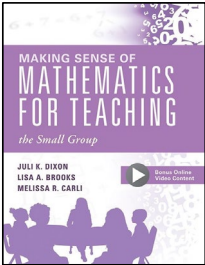

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## Making Sense of Mathematics for Teaching the Small Group

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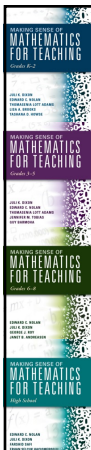
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 UNIVERSITY OF TEXAS AT AUSTIN  
 UNIVERSITY OF TEXAS AT ARLING

## Eliciting Student Errors

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## Eliciting Student Errors

What is the thinking behind the common error of  $\frac{1}{3}$ ?

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## Eliciting Student Errors

What is the thinking behind the common error of  $\frac{1}{5}$ ?

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## Why do we intervene?

Cultivate Perseverance

- Just-in-case scaffolding
- Just-in-time scaffolding

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## Where do we start?

- Prioritize content.
- Begin with concepts and link to procedures.
- Provide teacher supports so that worthwhile tasks are used and supported by productive discourse.

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## How do we intervene?

Six features for reinventing intervention

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