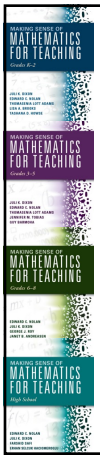
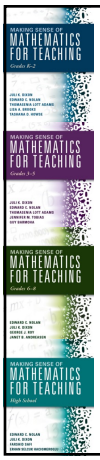


Reinventing Mathematics Intervention

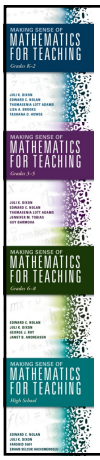
Juli K. Dixon, Ph.D.
JuliDixonMath@gmail.com

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



Session Goals

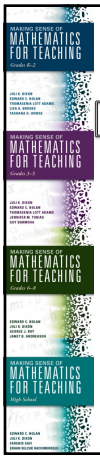
- Examine current structures for intervention.
- Explore six features for reinventing intervention.
- Provide a way to connect for continued discussions



Rethinking Intervention

What is the purpose of intervention?

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



Six Features for Re-Inventing Intervention

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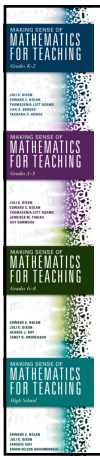
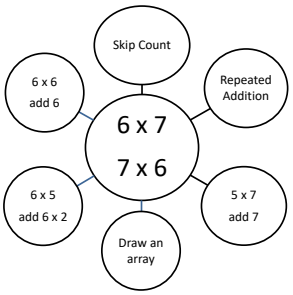
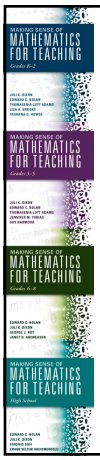


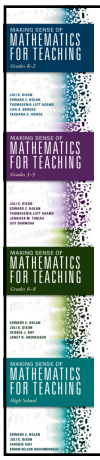
What strategies might students use to determine the product of 6 x 7 if they did not know it?





What mathematics is involved in each strategy?

- Drawing
- Counting Strategies
- Multiplicative Reasoning



Label each strategy as:

- Drawing,
- Counting Strategies, or
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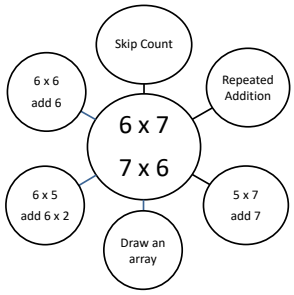

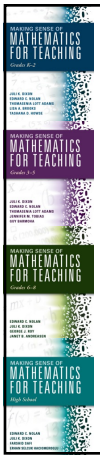

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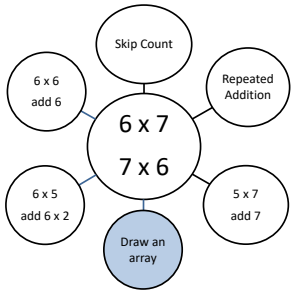
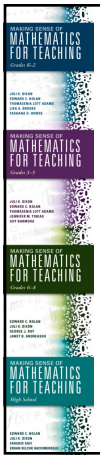
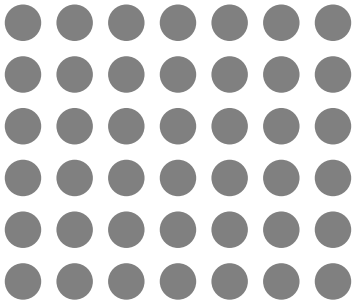
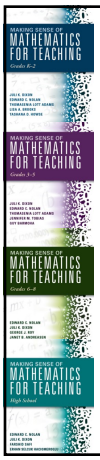




6 x 7





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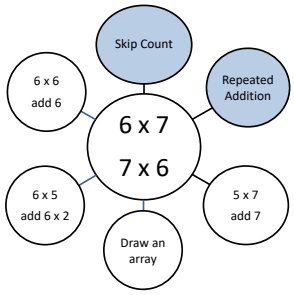
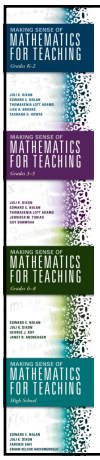
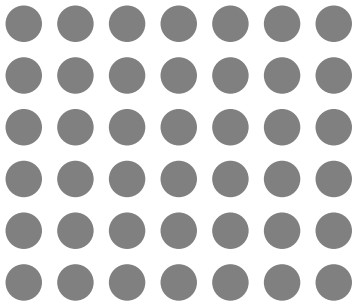
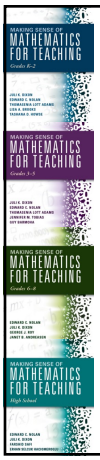




6 x 7 = 7 + 7 + 7 + 7 + 7 + 7





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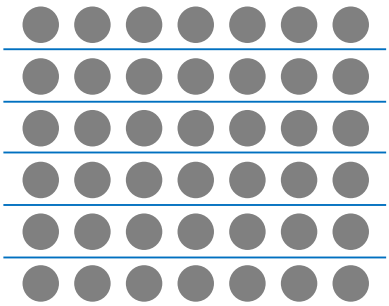

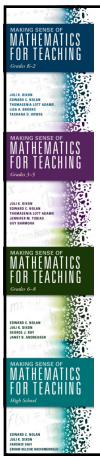

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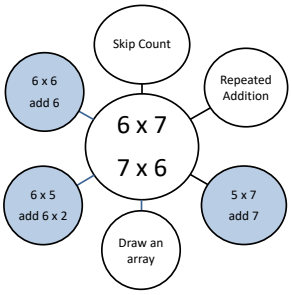

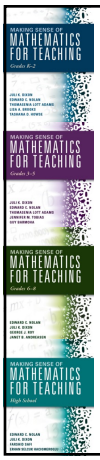

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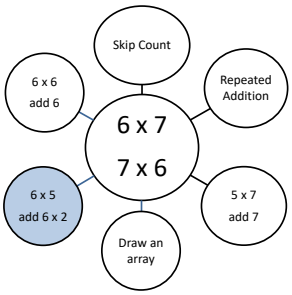
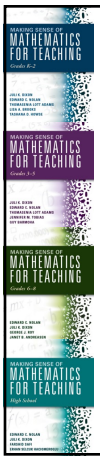
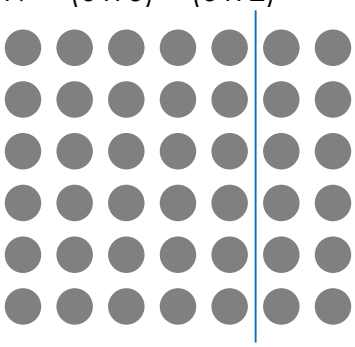
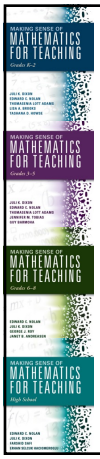




6 x 7 = (6 x 5) + (6 x 2)

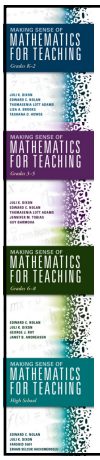


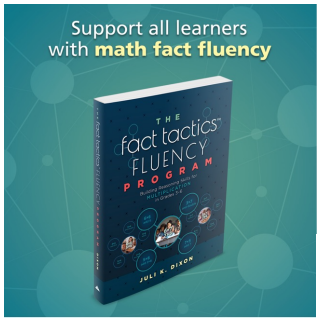


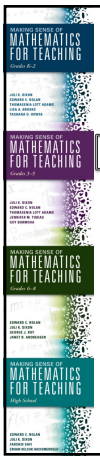
Notice the connections between concepts and procedures.

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

The distributive property of multiplication over addition.







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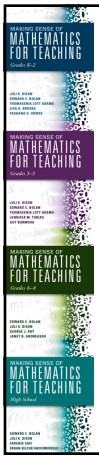
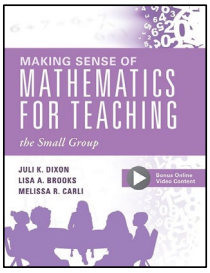
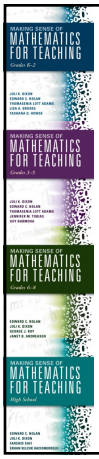




Making Sense of Mathematics for Teaching the Small Group



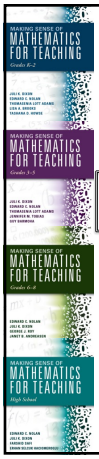
Why do we intervene?

Cultivate Perseverance

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

HMH

Blog:



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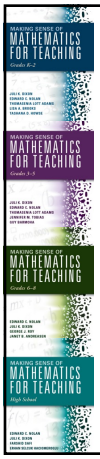
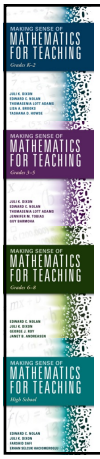


Purposeful Content

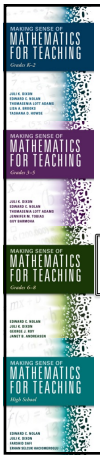
What do we focus on with students who are significantly far behind?

This needs to be a deep conversation.



Priority Topics

Grades 3-5	Grades 6-8
• Meaning of Operations • Fact Strategies (for addition and multiplication) • Multidigit Addition & Subtraction • Place Value	• Multidigit Multiplication & Division • Fractions/Decimals Concepts & Operations • Rates & Ratios • Integer Concepts & Operations • Equivalent Expressions



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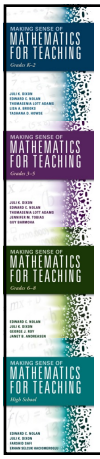
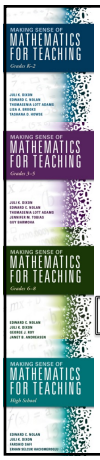


Discourse Norms

- 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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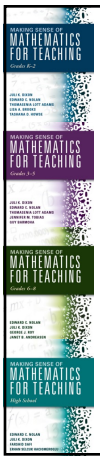
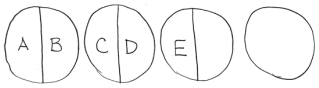


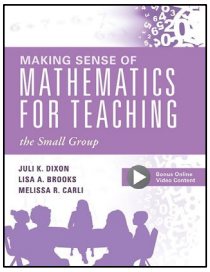
Plan with the TQE Process in Mind

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

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?





Making Sense of Mathematics for Teaching the Small Group

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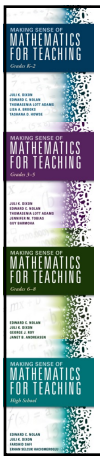
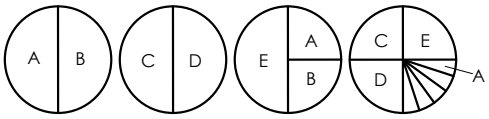
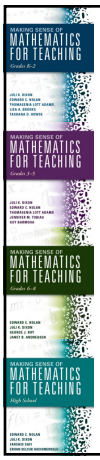


Eliciting Student Errors





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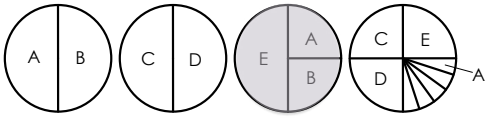
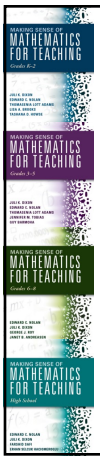


What is the thinking behind the common error of $\frac{1}{3}$?



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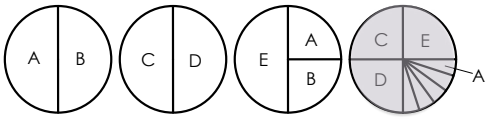

What is the thinking behind the common error of $\frac{1}{5}$?