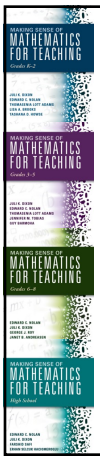

Unfinished Learning: Finding a Productive Path Forward

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@thestrokeofluck
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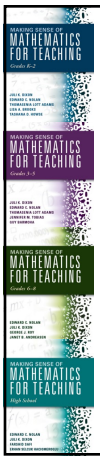
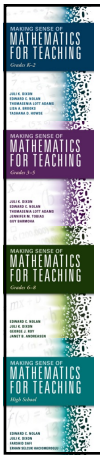


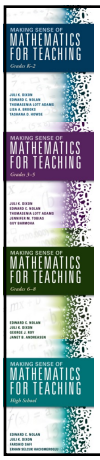
Do Now:

Use a strategy to determine the product of 6 x 7.



Goals for this Session

- Elevate and inform your instructional decisions.
- Explore and engage in multifaceted tasks.
- Make sense of strategies and justifications for using formative assessment in real time.



Your GPS for Success

Plan

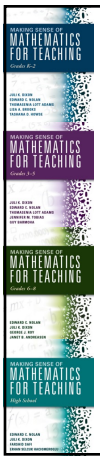
1. Before the chapter begins, make sense of:
   a) The learning goal
   b) Prerequisites to the learning goal, and
   c) Common errors connected to both the learning goal and the prerequisites.

Implement

2. Implement engaging, multifaceted tasks.

Assess

3. Use formative assessment in real time to provide scaffolding just in time rather than just in case.



Plan

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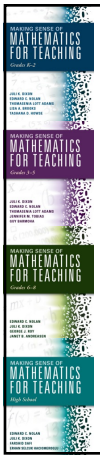
Apply properties of operations as strategies to multiply.

- Interpret products of whole numbers, e.g., interpret 5 x 7 as 5 groups of 7 objects each.
- Solve multiplication word problems in situations involving equal groups, arrays, and measurement.



Plan

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Apply properties of operations as strategies to multiply.

In grade 2 students connected repeated addition to arrays equal grouping situations.

Plan

1. Before the chapter begins, make sense of:
   a) The learning goal
   b) Prerequisites to the learning goal, and
   c) Common errors connected to both the learning goal and the prerequisites.

Apply properties of operations as strategies to multiply.

Students may confuse the roles of the factors so that their equations do not model their representations.

Schools might focus on fact fluency prior to strategy development.

Implement

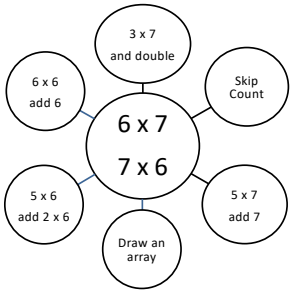
2. Implement engaging, multifaceted tasks.

Use a strategy to determine the product of 6 x 7.

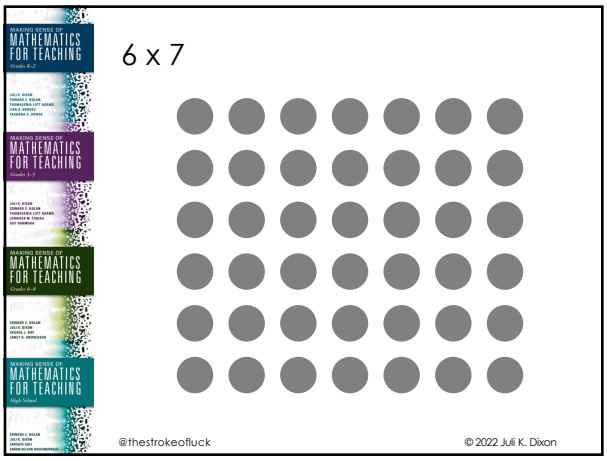
What mathematics is involved in each strategy?

- Drawing
- Counting Strategies
- Multiplicative Reasoning

Implement



Adapted from the Fact Tactics™ Fluency Program


6 x 7
@thestrokeofluck
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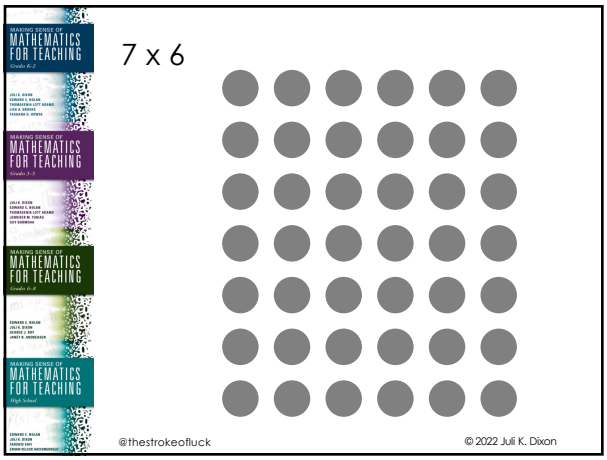
7 x 6
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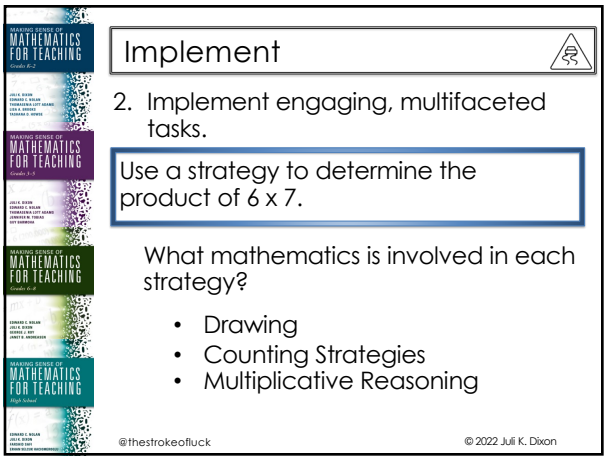
Implement
2. Implement engaging, multifaceted tasks.
Use a strategy to determine the product of 6 x 7.
What mathematics is involved in each strategy?
• Drawing
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@thestrokeofluck
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Implement

2. Implement engaging, multifaceted tasks.

Use a strategy to determine the product of 6 x 7.

We need to understand the different models to move students' learning forward.

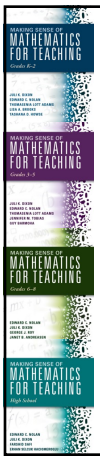
Assess

3. Use formative assessment in real time to provide scaffolding just in time rather than just in case.

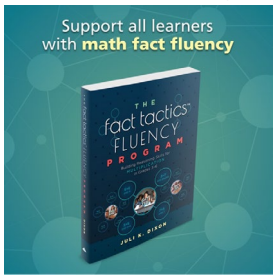
6 x 7

Consider this video

Houghton Mifflin Harcourt



Shameless Plug…



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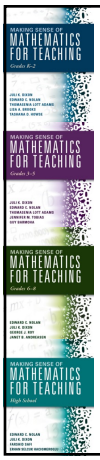

Plan

1. Before the chapter begins, make sense of:
   a) The learning goal
   b) Prerequisites to the learning goal, and
   c) Common errors connected to both the learning goal and the prerequisites.

Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations.

naming fractions

visual models

equivalent fractions

word problems

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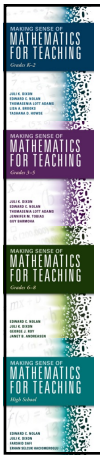

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Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations.

There are so many!

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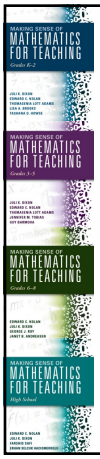
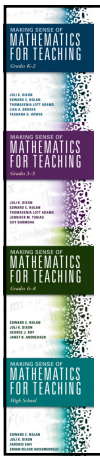


Implement

2. Implement engaging, multifaceted tasks.

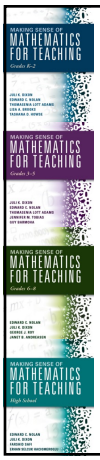
Brandon shared 4 cookies equally between himself and his 4 friends. He started by giving each person (including himself) a half of a cookie. What could he have done next and how much of a cookie should each person get?



Try this.

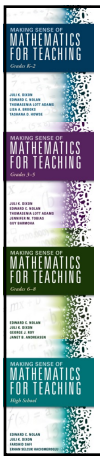
Think through the process of adding fractions with unlike denominators without using:

- numerator & denominator, or
- top number & bottom number



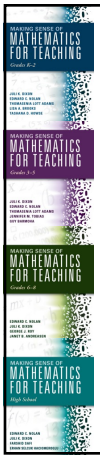
What happens when you don't use academic vocabulary?

Everyday language should come first – take a lesson from our English Learners!



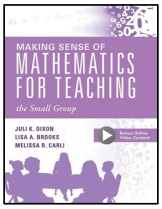
Academic vocabulary is still important – when you introduce it is what needs to be adjusted.

Introduce academic vocabulary as you connect concepts to procedures.

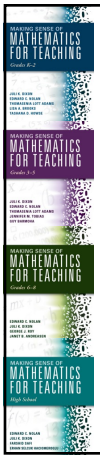


Implement

2. Implement engaging, multifaceted tasks.



Making Sense of Mathematics for Teaching the Small Group



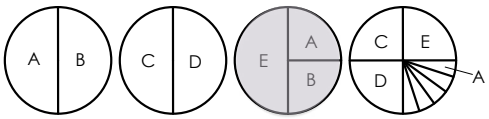
Students Do the Sense Making

What requirements do you have regarding the use of pulled small groups during mathematics instruction?

Are there requirements that might be undermining efforts to engage in rigorous standards?

Assess

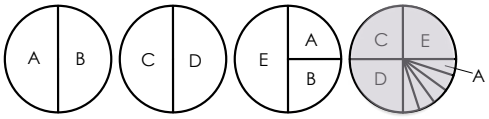
3. Use formative assessment in real time to provide scaffolding just in time rather than just in case.



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

Assess

3. Use formative assessment in real time to provide scaffolding just in time rather than just in case.



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

Assess

What happens when the teacher uses Gradual Release of Responsibility (I do, we do, you do)?

We lose the opportunity to assess what students know and need support to do.

Assess

Let's return to the cookie problem:

$\frac{1}{2} + \frac{1}{4} + \frac{1}{5}$

Anticipating student errors may be the most important part of anticipating student thinking. This is part of formative assessment!

Cultivating Perseverance

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

Blog: https://tinyurl.com/y5pcxcoq

Plan

1. Before the chapter begins, make sense of:
   a) The learning goal
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   c) Common errors connected to both the learning goal and the prerequisites.

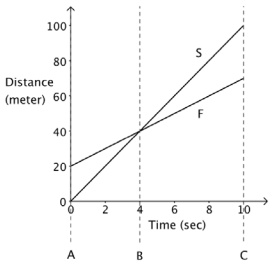
Solve systems of two linear equations with two variables for mathematical and real-world problems

Implement

Father (F) & Son (S) Race

Write a story that matches the graph.

Be sure to include what is occurring at A, B, and C as well as the intervals in between.



Assess

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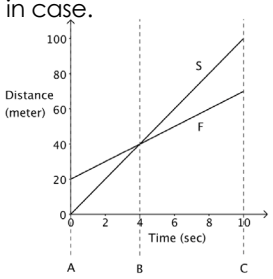
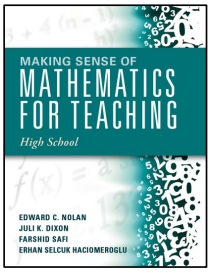
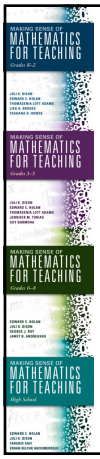


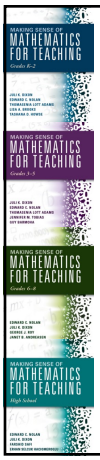


Making Sense of Mathematics for Teaching High School



Discourse Norms

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



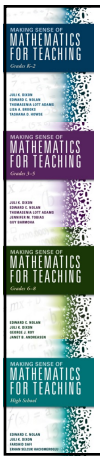
Priority Topics

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

This needs to be a deep conversation. How is intervention being supported?

What coaching strategies are in play?

What content is being prioritized?



Priority Topics

Grades 3-5	Grades 6-7
• Fact Strategies • Place Value • Multidigit Addition and Subtraction • Estimation (with whole numbers, fractions, and decimals!)	• Fraction Operations • Equivalent Ratios • Integer Operations • Equivalent Expressions