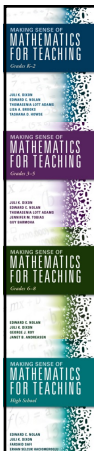


Fighting Fixed Mindsets: Instructional Shifts to Engage Learners

Juli Dixon, Ph.D.
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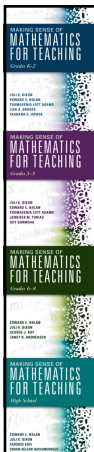
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Goals for this Session

- Make sense of five instructional shifts to promote student engagement.
- Create a shared image of classrooms where teachers are actively fighting fixed mindsets.
- Explore strategies to support learners who struggle with unfinished learning as well as those who don't to experience joy in mathematics.

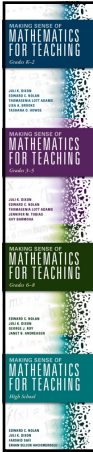
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Five Instructional Shifts

1. Teachers use engaging and multifaceted tasks.
2. Students provide the strategies.
3. Teachers provide strategies "as if" from students.
4. Students do the sense making.
5. Students talk to students.

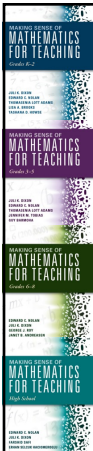
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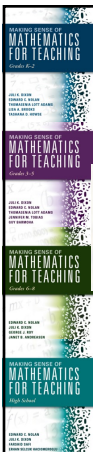


Shift 1: Teachers use engaging and multifaceted tasks

Teachers set the stage for students to provide the strategies.

This has the greatest return on investment if teachers have a plan for what to do with what students provide.

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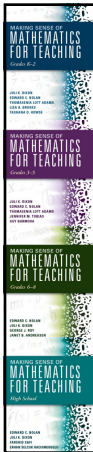
Shift 1: Teachers use engaging and multifaceted tasks

Spark Your Learning 

Four friends go hiking. They bring snacks, a compass, and $3\frac{1}{3}$ quarts of water. If they share the water equally, how many quarts will each person get?

Please use drawings to solve this. Do not use an algorithm.

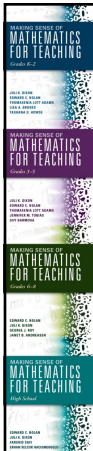
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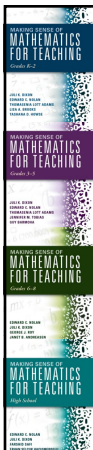


Shift 2: Students provide the strategies

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

If the goal is for students to provide the strategies, then the teacher can't demonstrate them first!

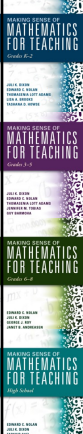
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Shift 2: Students provide the strategies

The learning goal should determine the structure of the lesson.

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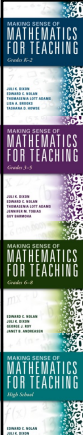


Plan with the TQE Process in Mind



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

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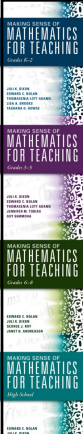


Shift 2: Students provide the strategies

Teachers set the stage for students to provide the strategies.

What does this look like in grade 1?

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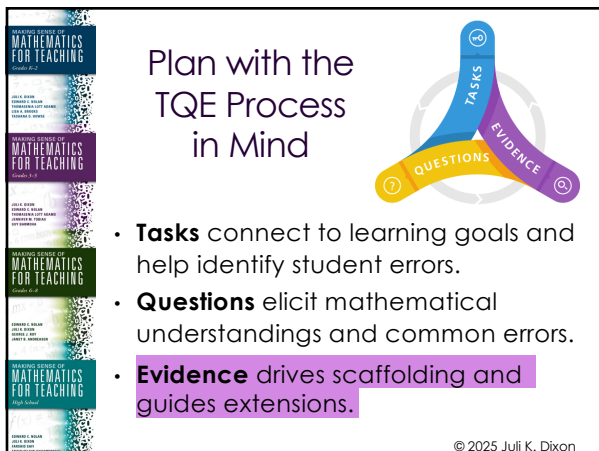


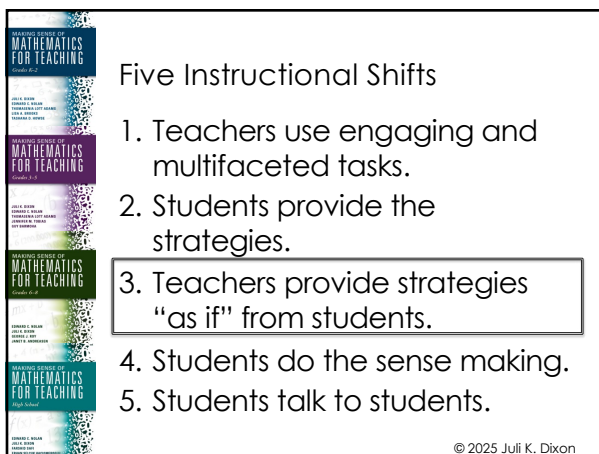
Shift 2: Students provide the strategies

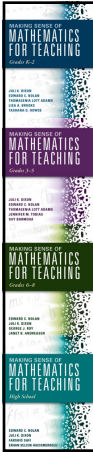
Learning Goal for Grade 1:

Use strategies to add and subtract within 20.

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[illegible]

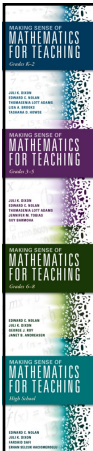




Shift 3: Teachers provide strategies "as if" from students

Teachers maintain control of the learning target by providing strategies "as if" they came from the students when necessary.

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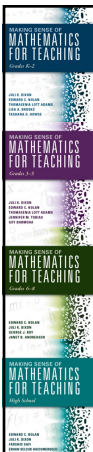
Shift 3: Teachers provide strategies "as if" from students

I saw someone do this....

$\frac{1}{2} \frac{1}{3}$
 $\frac{1}{2} \frac{1}{3}$
 $\frac{1}{2} \frac{1}{3}$
 $\frac{1}{2} \frac{1}{3}$

What do you think the student did next? And how would you respond?

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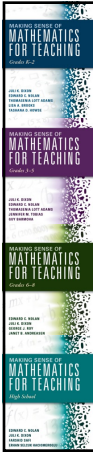
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$\frac{1}{2} \frac{1}{3}$
 $\frac{1}{2} \frac{1}{3}$
 $\frac{1}{2} \frac{1}{3}$
 $\frac{1}{2} \frac{1}{3}$

Anticipating student errors may be the most important part of anticipating student thinking.

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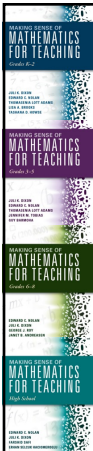


Cultivating Perseverance

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



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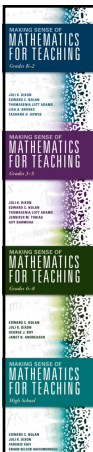
Shift 3: Teachers provide strategies “as if” from students

I saw someone do this....



We need to anticipate student errors **and** make space for them...

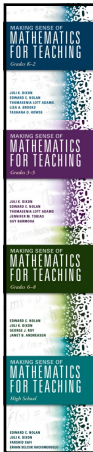
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Don't underestimate...

the power of “shush” 😊

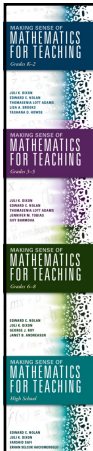
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Five Instructional Shifts

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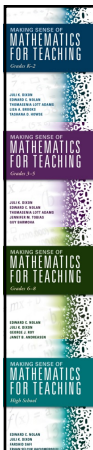


Culture Shift 4: Students do the sense making

Teachers must expect students to do the sense making.

Supporting good tasks during instruction is the key – including during small group instruction...

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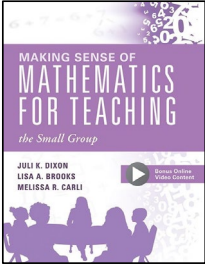


Culture Shift 4: Students do the sense making

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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Making Sense of Mathematics for Teaching
the Small Group

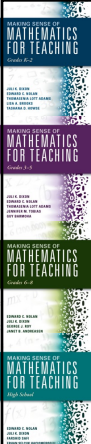
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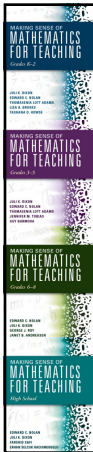


Shift 5: Students talk to students

Teachers set the stage for students to talk to students.

This occurs when the teacher is an active facilitator of instruction.

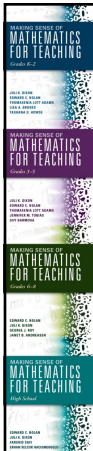
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Discourse Norms

- 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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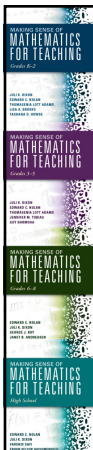
Shift 5: Students talk to students

Teachers set the stage for students to talk to students.

This occurs when the teacher is an active facilitator of instruction.

This takes planning.

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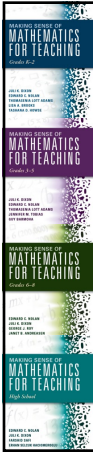


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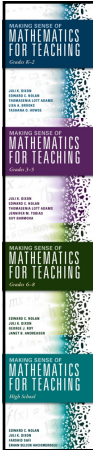


Goals for this Session

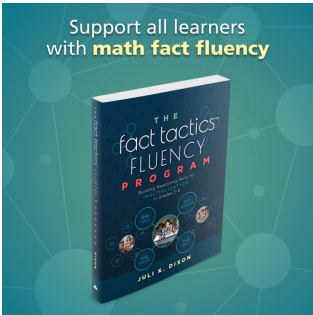
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Support all learners with **math fact fluency**




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