MAKING IT HAPPEN:

SUPPORTING INSTRUCTIONAL CHANGES NEEDED FOR THE COMMON CORE STATE STANDARDS

Lisa Rogers & Megan Brewer
Who We Are

Math Solutions, founded by Marilyn Burns, has been transforming instruction for over 30 years by providing the highest quality professional learning, coaching, and award-winning resources.
What keeps you up at night?

With the rigorous demands of new standards and assessments, high expectations for all students are more critical than ever.

*How do we help teachers achieve this belief and practice in the classroom?*
Session Goal:

Examine an district wide coaching project that used practical steps to assist teachers in building equity by examining instructional decisions and incorporating ‘math talk’ in their lessons.
Yesterday’s Classroom

Link to view video clip:
Today’s Classroom

Link to view video clip:
Compare and Contrast 2 videos:

• Yesterday’s Classroom: Today’s Classroom:
The Shift

How do we support teachers in making these instructional shifts?
District Goals

• Students will share their mathematical thinking and reasoning in math class and listen to and respect the thinking of their classmates.

• Students will participate in discussions that illustrate their mathematical thinking and reasoning.

• Students will respond to higher-level questions using mathematical thinking and reasoning.
Project Overview

Component 1
- Needs Assessment
- Online Survey & Walk-Throughs

Component 2
- Leadership Professional Learning
- 2 days for administrators

Component 3
- Foundational Professional Learning
- 3 days for teachers gr. 2-8
Project Overview

Component 4
- Model lessons

Component 5
- Job-embedded coaching for Math Leader cohort
Who to Support

Gr. 2-5
Gr. 6-8
High
Administrators
Math Coaches
Gr. 2-8
Our Plan to Support in the *Shift*

- **Course 1:** Reasoning and Discourse
- **Course 2:** Procedural Fluency and Mathematical Tools
- **Course 3:** Problem Solving
- **Model Lessons:** Bring Learning to Life
Let’s experience some of the support we provided for the educators....
LOGICAL REASONING AND CLASSROOM DISCOURSE
The brain is a muscle. Giving it a hard workout makes it stronger.

– Carol Dweck, Ph. D.
Author of MindSet
Positive Influences of Math Discourse

- Talk can reveal understanding and misunderstanding.
- Talk supports robust learning by boosting memory.
- Talk supports deeper reasoning.
- Talk supports language development.
- Talk supports the development of social skills.
## Project Challenge

<table>
<thead>
<tr>
<th>Scores on TOMA-2</th>
<th>Beginning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Average</td>
<td>73%</td>
</tr>
<tr>
<td>Average</td>
<td>73%</td>
</tr>
<tr>
<td>Above Average</td>
<td>23%</td>
</tr>
<tr>
<td>Superior/Very Superior</td>
<td>4%</td>
</tr>
</tbody>
</table>

Talk Moves

• Revoicing
• Repeating
• Reasoning
• Adding on
• Waiting
Talk Moves

• **Revoicing**: “So you’re saying that ...”

• **Repeating**: “Can you repeat what he/she just said in your own words?”

• **Reasoning**: “Do you agree or disagree and why?”

• **Adding On**: “Would someone like to add on?”

• **Using Wait Time**: “Take your time ... we’ll wait while you think ...”
Digit Place

<table>
<thead>
<tr>
<th>Guess</th>
<th>Digits Correct</th>
</tr>
</thead>
</table>

| Places Correct |
Processing Digit Place

• What strategies did you develop to play the game?
• What role did communication play in supporting you in the game?
• How did playing with someone enhance your thinking?
Building a Bridge with Talk Formats

- Whole-class discussion
- Small-group discussion
- Partner talk

Classroom Discussions: Using Math Talk to Help Students Learn, 2009
Express Regularity in Repeated Reasoning

Model with Mathematics

Make Sense of Problems & Persevere

Use Appropriate Tools

Look for & Make Use of Structure

Reason Abstractly & Quantitatively

Attend to Precision

Construct Viable Arguments
Where do we begin?

Link to view video clip:
Which is a Better Choice?

Which is a better choice, $\frac{3}{5}$ or $\frac{7}{8}$ for the location A on the number line?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$\frac{1}{4}$</td>
<td>A</td>
</tr>
</tbody>
</table>
What do you notice?

Link to view video clip:
What Is Discourse?

**Discourse**[dis•course] *noun*

the way ideas are exchanged and what the ideas entail

- Who talks? About what? In what ways?
- What do students write? What do they record? Why?
- What questions are important?
- Whose ideas and ways of thinking are valued?
High Quality Math Talk

“Our goal is not to increase the amount of talk in our classrooms, but to increase the amount of high quality talk in our classrooms—the mathematical productive talk.”

Progress Monitoring

- Needs Assessment
- Course Evaluations
- On-going district reporting
- On-line surveys
- Walkthroughs
So, how’s it going????

Thank you for this day of focusing on teaching mathematics for deeper understanding! It was wonderful to collaborate with other teachers! I am looking forward to the model lessons and parts 2 & 3!
So, how’s it going????

[Handwritten comment]

Thank you so much for all of the great activities, ideas, and food-for-thought! I feel like everyone attending math solutions would come away a better teacher!
So, how’s it going????

COMMENTS: What else would you like to tell us? May we use it in marketing materials? Circle Y/N

I love the practical uses you learn in this class. You feel you could go back to your classroom tomorrow and try it with your own students.
So, how’s it going????

11. What was the most beneficial part of this model lesson experience for you?

<table>
<thead>
<tr>
<th>Count</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Being able to observe all the concepts that she touched upon during the lessons.</td>
</tr>
<tr>
<td>1</td>
<td>I observed in action all the instructional strategies learned in Math solutions.</td>
</tr>
<tr>
<td>1</td>
<td>It was beneficial to see Megan use the talk moves.</td>
</tr>
<tr>
<td>1</td>
<td>Planning together as a group</td>
</tr>
<tr>
<td>1</td>
<td>Seeing the math talks and lesson done in person.</td>
</tr>
<tr>
<td>1</td>
<td>The model lesson with third graders.</td>
</tr>
<tr>
<td>1</td>
<td>The new way to review, teach and preview a lesson all in one</td>
</tr>
<tr>
<td>1</td>
<td>Watching Megan perform the lesson in the class.</td>
</tr>
<tr>
<td>1</td>
<td>Watching Megan put it in action.</td>
</tr>
<tr>
<td>1</td>
<td>Watching it in action. It was helpful to watch it happen with students after planning it start to finish.</td>
</tr>
<tr>
<td>1</td>
<td>All too often we go to workshops and trainers give us tools we Can take back to out classroom , but it was helpful to see it in a real classroom setting with kids that we work with everyday.</td>
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So, how’s it going????

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<td>Students clarifying knowledge and concepts through probing questions</td>
</tr>
<tr>
<td>1</td>
<td>While setting up the model lesson together as a group, alternatives were discussed to accommodate different classroom needs. This made it easier for me to see how I could do the same thing for my specific classroom needs.</td>
</tr>
<tr>
<td>1</td>
<td>Planning together with others, not just from our school but from our district. Then being to see the lesson being modeled and debriefing. The questioning piece was very beneficial to see in action.</td>
</tr>
<tr>
<td>1</td>
<td>Watching an experienced teacher think on their feet with 15 teachers and 22 students watching and evaluating.</td>
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12. What are you wondering about after this experience?

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<tr>
<td>1</td>
<td>How I can get my students to take more part in class discussions.</td>
</tr>
<tr>
<td>1</td>
<td>When is the next one for Osceola County?! Send Brenda again!</td>
</tr>
<tr>
<td>1</td>
<td>How can the paradigm shift be sold to students, parents and community that teachers need to let students think and share their thoughts on academics so we can guide them to truly understand concepts and to remove misconceptions.</td>
</tr>
</tbody>
</table>
Next Steps to Support Shift

K-12 Focus

Content Focus

Continued Support
NCSM Booth 613
mathsolutions.com/presentations

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info@mathsolutions.com