SOMETHING TO TALK ABOUT: ASSESSING STUDENT REASONING AND THINKING

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Assessment

What comes to mind when you hear “assessment”?
Purpose of Assessment

• Planning
• Monitoring
• Diagnosing
• Evaluating
Benefits of Assessing Through Talk

• Gives students time to think.

• Develops listening carefully to student thinking.

• Establishes student talk expectations.

• Provides students time to share thinking.

• Modify and plan questions and how we use student information collected.

Which Does Not Belong?

• 2, 6, 5, 10
• 2, 3, 15, 23
• $\frac{1}{2}$, 2, 8, 16
• 9, 16, 25, 43
What is Discourse (Math Talk)?

Discourse is both 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?
Standards for Mathematical Practice

MP 3: Construct viable arguments and critique the reasoning of others.

“Mathematically proficient students can listen to the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.”
Tell Me All You Can
Tell Me All You Can

The answer is going to be around/about _______ because _______.

The answer is going to be close to __________

because __________.

The answer is going to be between _________ and _________ because ___________.

The answer is going to be greater than _________

because _________________.

The answer is going to be less than _____because _______.

12 x 7

• The answer is going to be about ___ because ____.
• The answer is going to be between ___ and ___ because ____.
• The answer is going to be less than ___ because ____.
• The answer is going to be greater than ___ because ____.
$42.6 \times 0.62$

- The answer is going to be about ___ because ____.
- The answer is going to be between ___ and ___ because ____.
- The answer is going to be less than ___ because ____.
- The answer is going to be greater than ___ because ____.
\[ 5 \times \frac{2}{3} \]

- The answer is going to be about \____ because \____.
- The answer is going to be between \____ and \____ because \____.
- The answer is going to be less than \____ because \____.
- The answer is going to be greater than \____ because \____.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>861 ÷ 8</td>
<td>29 + 19</td>
<td>2/3 + 3/4</td>
</tr>
<tr>
<td>75 × 12</td>
<td>22 × 65</td>
<td>345 + 298</td>
</tr>
<tr>
<td>920 × 0.8</td>
<td>35 × 3/4</td>
<td>25% of 80</td>
</tr>
</tbody>
</table>

- The answer is going to be about ____ because ____.
- The answer is going to be between ____ and ____ because ____.
- The answer is going to be less than ____ because ____.
- The answer is going to be greater than ____ because ____. 
Processing
Tell Me All You Can

• What mathematical thinking is needed for this instructional activity?

• What will you be able to assess about student thinking and reasoning if you observe this activity in a classroom?

• How would this activity support mathematical habits of mind?
Which is a better choice, $3/5$ or $7/8$ for the location marked A on the number line?
Viewing the Video

• How did the teacher use Math Talk to support and assess student understanding?

• What mathematical concepts and thinking did students use to solve this problem?
Which is a better choice, $\frac{3}{5}$ or $\frac{7}{8}$?

“I Know That $\frac{7}{8}$ is greater than $\frac{3}{5}$…” in Classroom Discussions in Math: A Teacher’s Guide for using talk moves to support the Common Core and more, Grades K–6
Processing Fractions on a Number Lines

• How did the teacher use Math Talk to support and assess student understanding?

• What mathematical concepts and thinking did students use to solve this problem?
Talk Moves

• Revoicing
• Repeating
• Reasoning
• Adding on
• Waiting

Talk Formats

- Whole-class discussion
- Small-group discussion
- Partner talk
Four Steps to Productive Classroom Discussions

Step 1: Helping individual students clarify and share their own thoughts

Step 2: Helping students orient to the thinking of other students

Step 3: Helping students deepen their reasoning

Step 4: Helping students to engage with the reasoning of others
Four Strikes and You’re Out

______  ______  ______

x  ______

_____________________

______  ______  ______

0 1 2 3 4 5 6 7 8 9
Four Strikes and You’re Out!

0 1 2 X X 5 6 X X 9

Strikes: X X

___ 7 + ___ 7 = ___ 2 4
Four Strikes and You’re Out

\[ \underline{0} \times \underline{123456789} = \underline{0} \]
Processing

What would teachers be able to assess about mathematical thinking during this game?
Final Processing

• How much Math Talk have you observing during instruction?

• How do your teacher use Math Talk to assess student learning?

• What is your role in supporting the implementation of Math Talk to assess student learning?
Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.
ASK. LISTEN. LEARN.
Thank you!

Come to Booth #401

Presentation at:
http://mathsolutions.com/contact-us/speaker-presentations/