SCHOLASTIC ACHIEVEMENT PARTNERS | Math Solutions FOUNDED BY MARILYN BURNS

SOMETHING TO TALK ABOUT: ASSESSING STUDENT REASONING AND THINKING

Le'Vada Gray and Genni Steele

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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.

Jeane M. Joyner and Mari Muri, *INFORMative Assessment, Grades K-6*. (Math Solutions, 2011).

Which Does Not Belong?

- 2, 6, 5, 10
- 2, 3, 15, 23
- $1/2$, 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 x 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 ___.

$5 \times 2/3$

- 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 ___.

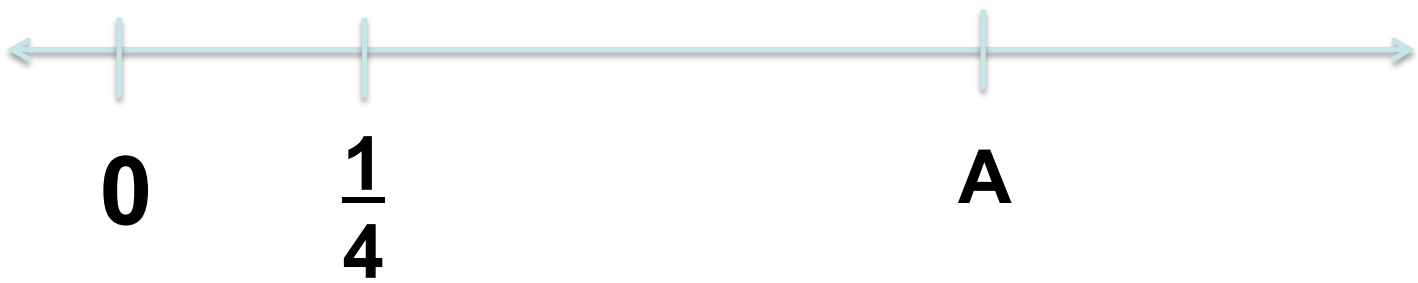
861÷8	29 + 19	2/3 +3/4
75 X 12	22 X 65	345 + 298
920 X 0.8	35 X 3/4	25% of 80

- 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?

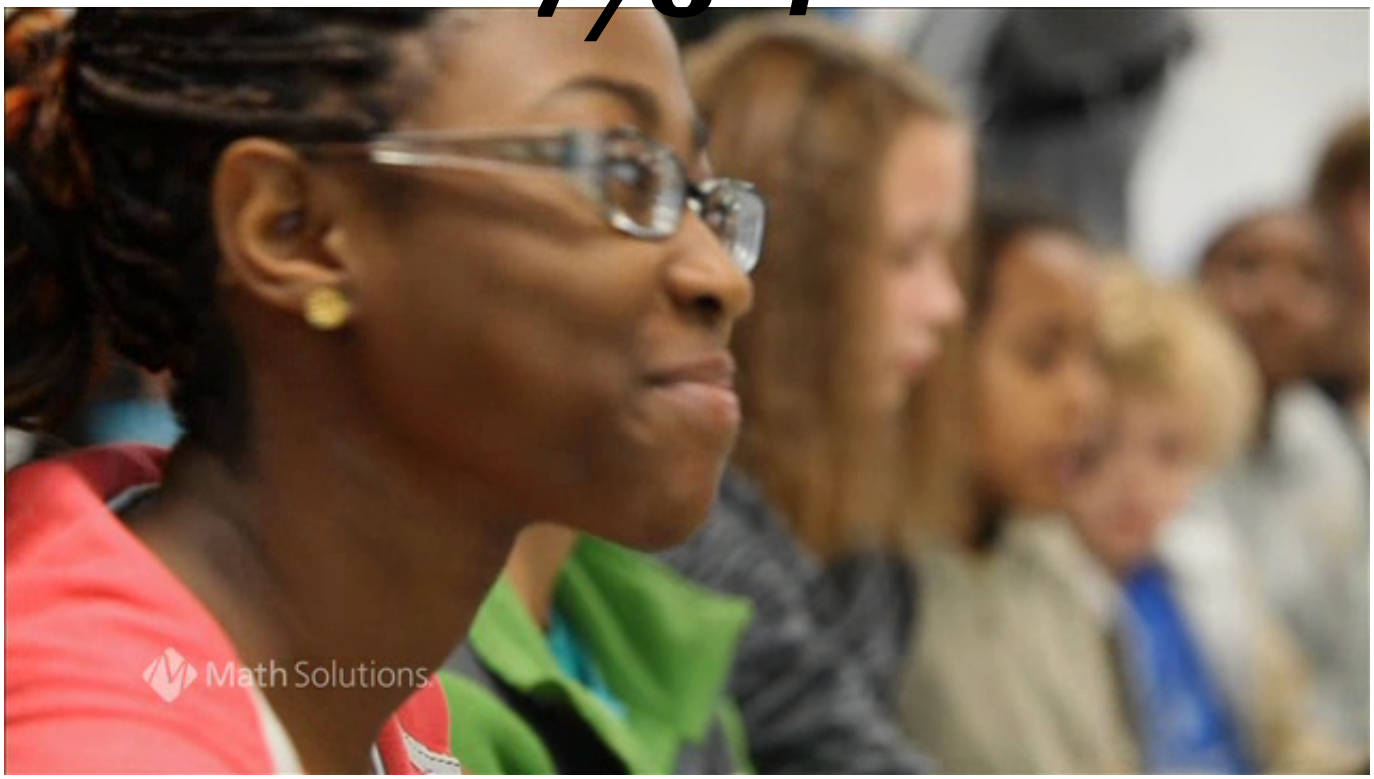


Viewing the Video

- 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, 3/5 or 7/8 ?



""I Know That 7/8 is greater than 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

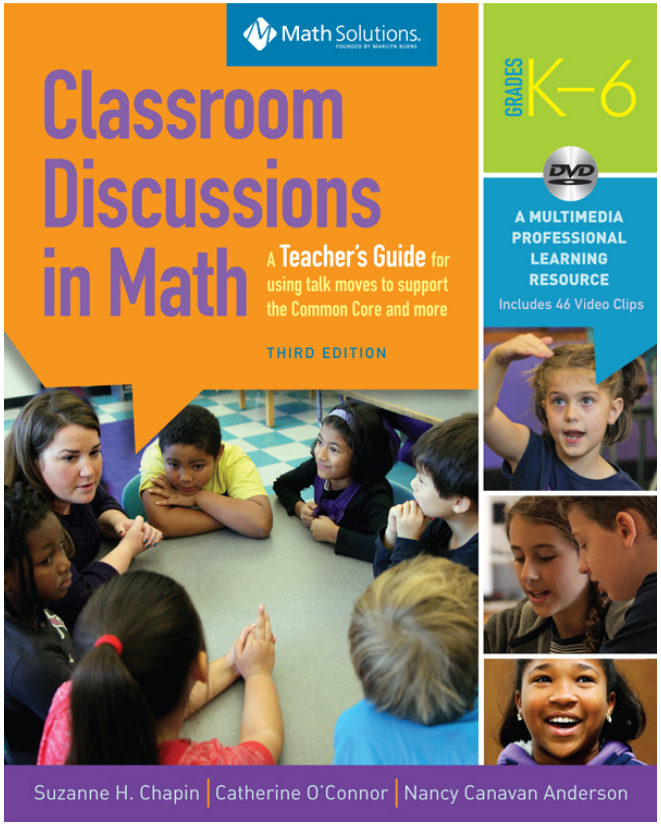
Processing
Fractions on a Number Lines

- 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



Suzanne H. Chapin, Catherine O' Connor, and Nancy Canavan Anderson, *Classroom Discussion in Math, Grades K-6*. (Math Solutions, 2013).

Talk Formats

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

Classroom Discussions: Using Math Talk to Help Students Learn, 2009

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~~ ~~3~~ ~~4~~ 5 6 ~~7~~ ~~8~~ 9

Strikes: X X

___ 7 + ___ 7 = ___ 2 4

Four Strikes and You're Out

$$\frac{\square}{\square} \times \frac{\square}{\square} = \frac{\square}{\square}$$

0 1 2 3 4 5 6 7 8 9

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

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