Examining Student Work for Mathematical Thinking (grades 3-8)

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Agenda

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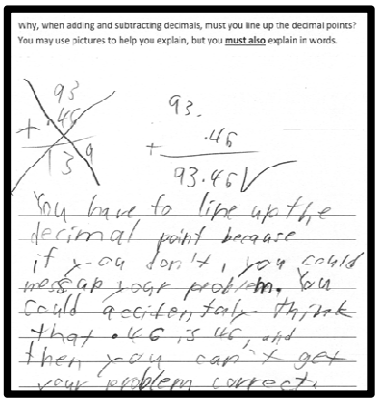
1. Introduction
2. A 5th/6th grade fractions writing prompt
3. MARS formative assessment tasks (you choose your grade level and task)
4. Wrap-up

Examining Student Work

Why, when adding and subtracting decimals, must you line up the decimal points? You may use pictures to help you explain, but you must also explain in words.

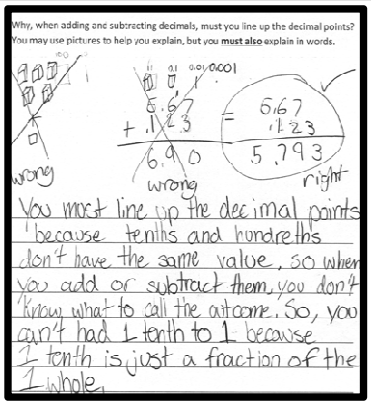
Steven

- **Procedural only**
- **Focused on the answer**
- **Example shows procedure**



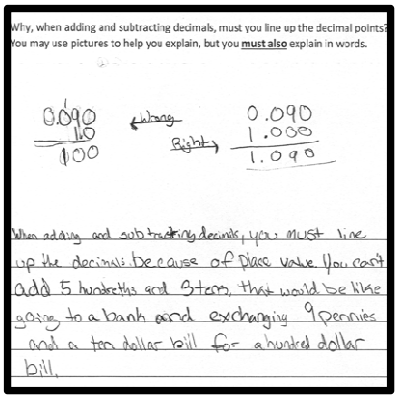
Anna

- **Conceptual**
- **Focused on place value**
- **Uses base ten blocks in picture but doesn't explain them**



Caitlin

- **Conceptual**
- **Focused on place value**
- **Money example in the text matches her calculation example**



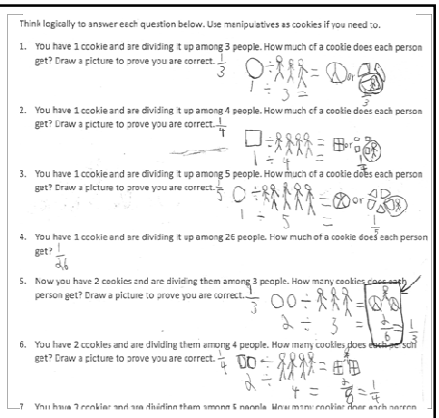
Student Thinking

- All 3 students could add decimals correctly.
- The differences were in their level of thinking about the problem conceptually.
- Student thinking tells us about student understandings and student misconceptions.

Jennifer

a/b = a ÷ b

- **1 ÷ n is correct**
- **What happens when it becomes 2 ÷ n ?**



Student Thinking

- Jennifer has a misconception. What is it?
- Jennifer is confused about the whole. Is one cookie the whole or is the group of cookies the whole?
- Student thinking tells us about student understandings and student misconceptions.

A Fractions Writing Prompt

Explain why 5 x 5/6 equals 4 1/6.

You may not use the algorithm to explain. You must explain why the answer actually makes sense.

In groups of 2-3, examine the index cards and discuss the questions on the back.

Examine a MARS Task

(MARS – Mathematics Assessment Resource Service)

These analyses of student work and resources for teachers available on the Inside Mathematics website:

www.insidemathematics.org

Examine a MARS Task

1. Find a group of 3-4 from the same grade level.
2. Send a representative to choose a task.
3. Peruse the packet to see what is inside.
4. **Discuss the student work.**
   What do you notice about student understandings and misunderstandings?

The Take-Home Message

- We can "see" students' thinking in their written work and calculation methods
- Examining student work for student thinking allows us to see:
  - student understandings
  - hidden misconceptions

Resources

- The MARS Assessment Tasks used in this workshop are free to download from the Inside Mathematics website: **www.insidemathematics.org**
- Today's presentation handout: **tinyurl.com/Wilmington2014**
- Email me: Ann Gaffney at **gaffneyedcons@gmail.com**

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