

Class #1

- Introductions
- Overview of course
- Viewing mathematics teaching: What can you see?
- Grid rectangles problem
- Wrap up & assignment

What *is* “Mathematical Knowledge for Teaching”? An Example from Multiplication of Decimals

Multiply:

$$\begin{array}{r} 3.5 \\ \times 2.5 \\ \hline \end{array}$$

Analyzing Incorrect Answers for $\begin{array}{r} 3.5 \\ \times 2.5 \\ \hline \end{array}$

(a)

$$\begin{array}{r} 3.5 \\ \times 2.5 \\ \hline 255 \\ 80 \\ \hline 10.55 \end{array}$$

Why do you multiply before you add?

(b)

$$\begin{array}{r} 3.5 \\ \times 2.5 \\ \hline 62.5 \end{array}$$

Why do you have as many decimal places in the answer as the total number of decimal places in the problem?

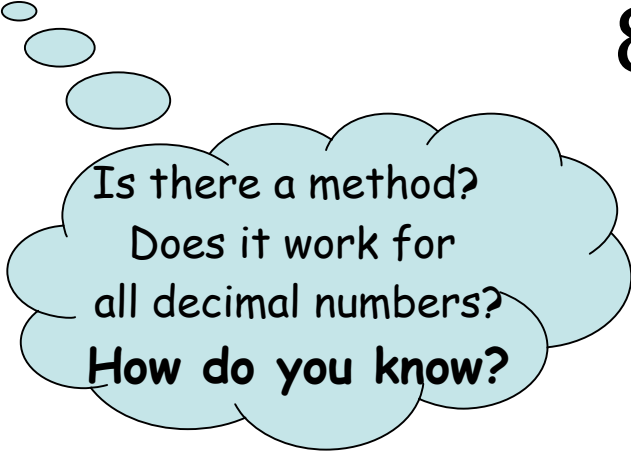
Analyzing Correct Answers for $\begin{array}{r} 3.5 \\ \times 2.5 \\ \hline \end{array}$

(a)

$$\begin{array}{r} 3.5 \\ \times 2.5 \\ \hline .25 \\ 1.5 \\ 1 \\ 6 \\ \hline 8.75 \end{array}$$

(b)

$$\begin{array}{r} 3.5 \\ \times 2.5 \\ \hline 1.25 \\ 7.5 \\ \hline 8.75 \end{array}$$



Is there a method?
Does it work for
all decimal numbers?
How do you know?

Learning Mathematics as a Teacher

- **What is involved in learning mathematics as a student?**
 - Learning for your own understanding
 - Making sure you can solve problems, do your own work, be able to pass exams
- **Making a transition to learning mathematics as a teacher**
 - Learning not just what you understand, but attending to others' thinking
 - Practicing talking mathematics
 - Focusing on explanations and reasons
 - Acquiring multiple ways to represent, solve, explain

Notebooks

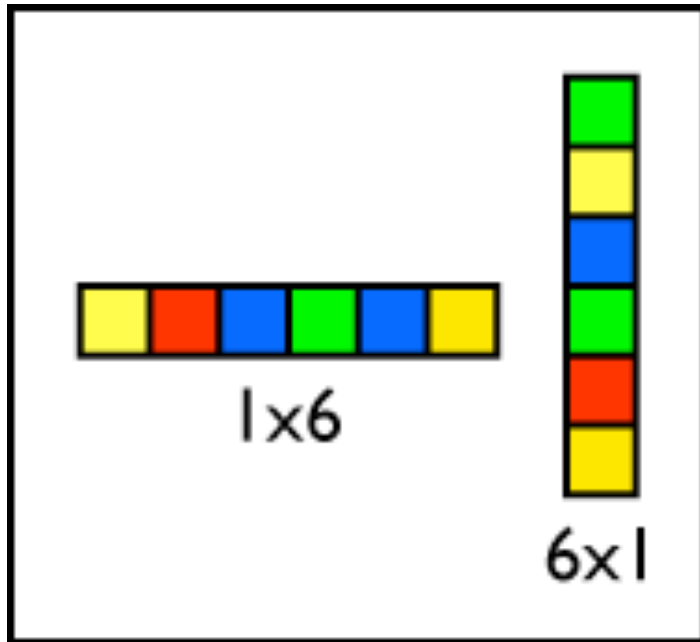
- To make records of your own learning
- To collect ideas for future use
- To keep notes from others' learning and ideas
- To use as a reference across our course
- To explore this as a tool for supporting different kinds and levels of learning
- To explore possible uses for a notebook as a professional

Viewing Mathematics Teaching

Context:

- Fifth graders in summer school class
- Typical range of achievement, interest, confidence, motivation
- Second day of class, working on grid rectangles problem

The Grid Rectangle Problem



For numbers of tiles from 1 - 36, build all the grid rectangles you can.

How do you know you have all of them?

What patterns do you notice?

Viewing Mathematics Teaching

What stands out to you --- what surprises or puzzles you, interests you, make you curious?

What do you notice about what is going on with the students and the teacher with this math problem?

What mathematical issues do you see?

Wrap Up

- Video taping tomorrow?
- Michigan time
- Assignments
- Comment cards
- Please let us know if you have any questions or concerns!

Assignments

- Go to course website, investigate
- Read syllabus, send comments and questions (by Sunday)
- Complete survey (by Sunday)
- Individual assignment (in notebook):
 - Complete the grid rectangle problem
 - Identify at least two patterns in the grid rectangle problem solution, explain why they occur
 - Re-view video and reflect in notebook

Comment Cards

- **What are your thoughts about today's class?**