

Facilitated Task Talk

Linear or Quadratic? Let's Engage in a Rich Task!

Jennifer Outzs

Teacher

PCMI/NCTM Institute Facilitator

Pinellas County Schools, FL

outzs@yahoo.com

Barb Lynch

Teacher

NCTM Institute Facilitator

Lakewood City Schools, OH

LotsOfPi@gmail.com



Introductions

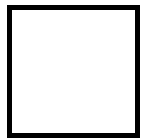
- Please make a nameplate
- Please introduce yourself to your tablemates
 - Name
 - Where you teach
 - Grades/classes you teach
 - How long you have been teaching
 - Two “fun facts” about yourself

Teacher?
I prefer
the term
Educational
Rockstar

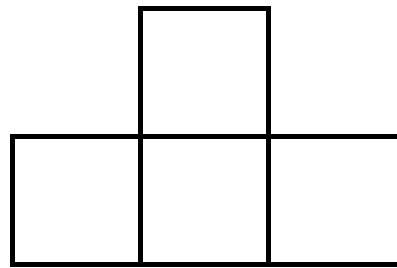
Today's Agenda

- Explore a rich mathematical task (“student hat”)
- Looking at student work and consider aspects of implementing this task with students (“teacher hat”)

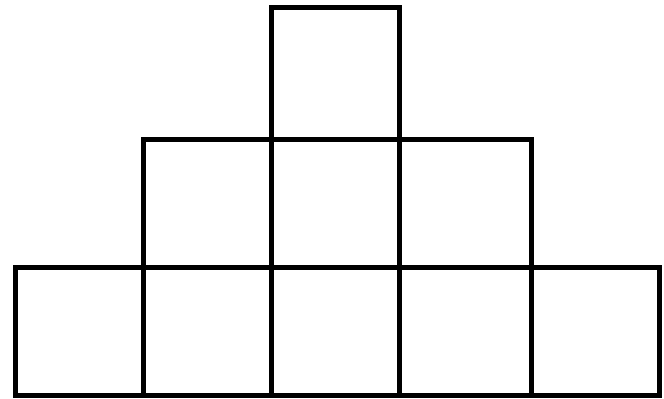
Considering Change



Step 1



Step 2



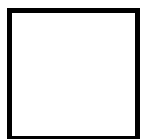
Step 3

Private work time:

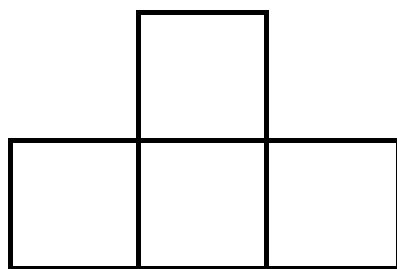
In this figure as the step changes, the _____ also changes.

Try to generate 10+ ideas!

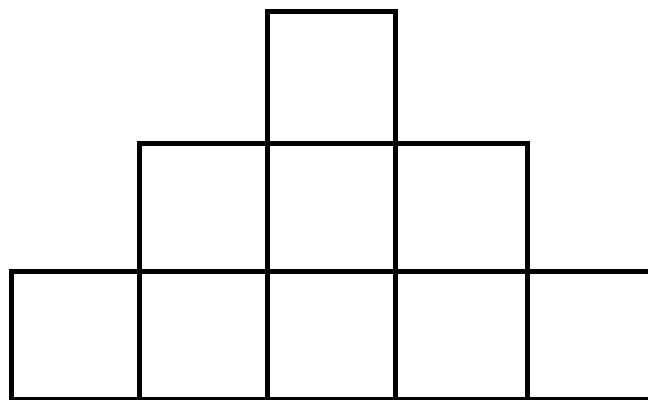
Considering Change



Step 1



Step 2



Step 3

“In this figure as the step changes, the _____ also changes.”

Share your ideas with a partner or two.

See if hearing others’ ideas inspire some new ideas!

Considering Change

“In this figure as the step changes, the _____ also changes.”

- perimeter
- area (i.e., # of square tiles)
- # of interior segments
- # of vertices
- # of missing tiles if figure was a rectangle
- # of columns
- # of rows
- # of total squares (1x1, 2x2, 3x3, etc)
- # of rectangles
- Surface area if it was a 3d figure (made with cubes)

Investigating Change

- Working in groups of three...
 - investigate one of the changes
 - use multiple representations to describe the change you observe
- Record your work on chart paper – record enough so that others will be able to follow your thinking without additional explanation

Teacher Hat

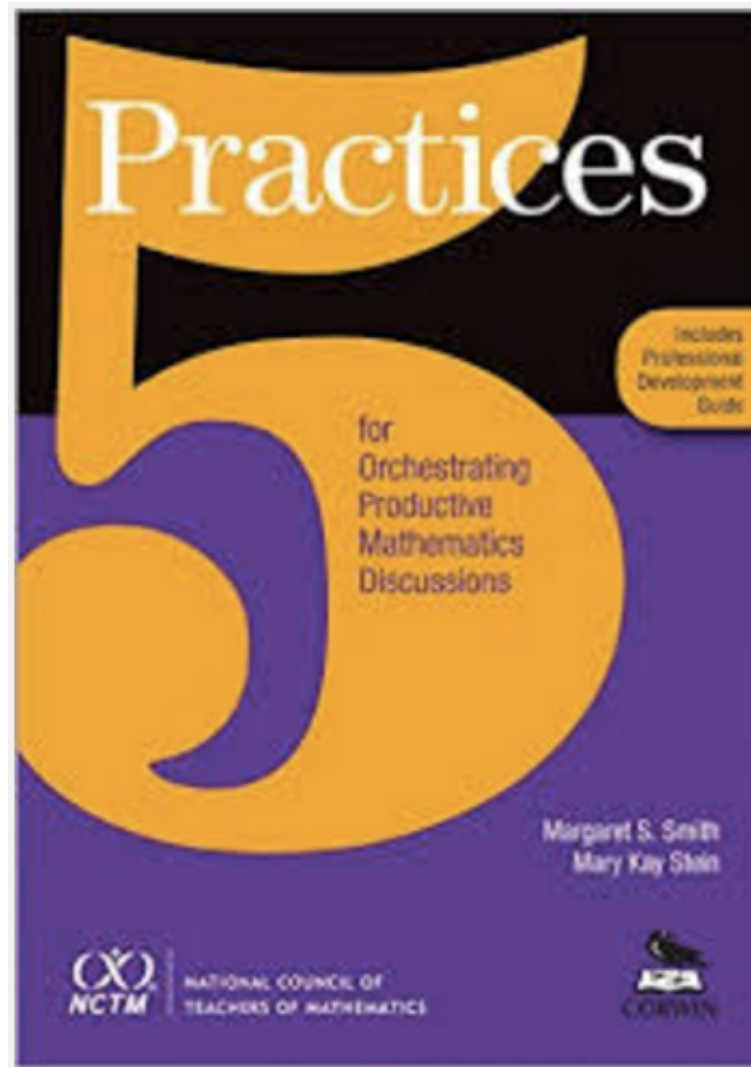
“Teacher Hat”

Orchestrating a Mathematical
Discussion

5 Practices for Orchestrating Productive Mathematics Discussions



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5 Practices for Orchestrating Productive Mathematics Discussions



Anticipating

- Do the problem yourself
- What are students most likely to produce?
- Which problems will most likely be the most useful in addressing the mathematics?

5 Practices for Orchestrating Productive Mathematics Discussions



Monitoring

- Listen, observe, identify key strategies.
- Keep track of approaches
- Ask questions to get students back on track or to think more deeply

5 Practices for Orchestrating Productive Mathematics Discussions



Selecting

- CRUCIAL STEP - what do you want to highlight?
- Purposefully select those that will advance mathematical ideas.

5 Practices for Orchestrating Productive Mathematics Discussions



Sequencing

- In what order do you want to present student work?
- Do you want the most common or do you want to present misconceptions first?
- How will students share their work?

5 Practices for Orchestrating Productive Mathematics Discussions



Connecting

- Craft questions to make the mathematics visible.
- Compare/contrast 2 or 3 students' work - what are the mathematical relationships?
- What do parts of student's work represent in the original problem? The solution? Work done in the past?

Selecting & Sequencing



With your group, examine the posters and consider the following:

1. Which solutions would you want to have students present? Why?
2. What order would you want the solutions presented? Why?

Selecting & Sequencing



- What were your “rules of thumb” for *selecting* the solutions to be shared?
- What were your “rules of thumb” for *sequencing* these solutions?

Connecting



- What questions would you ask in order to help students reach your mathematical goal(s)?

Enjoy the conference!

Teaching

"Teaching seems to require the sort of skills one would need to pilot a bus full of live chickens backwards, with no brakes, down a rocky road through the Andes while providing colorful and informative commentary on the scenery."

---Franklin Habit

Disclaimer

The National Council of Teachers of Mathematics is a public voice of mathematics education, providing vision, leadership, and professional development to support teachers in ensuring equitable mathematics learning of the highest quality for all students. NCTM's Institutes, an official professional development offering of the National Council of Teachers of Mathematics, supports the improvement of pre-K-6 mathematics education by serving as a resource for teachers so as to provide more and better mathematics for all students. It is a forum for the exchange of mathematics ideas, activities, and pedagogical strategies, and for sharing and interpreting research. The Institutes presented by the Council present a variety of viewpoints. The views expressed or implied in the Institutes, unless otherwise noted, should not be interpreted as official positions of the Council.



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