Bring Your Own Student Work

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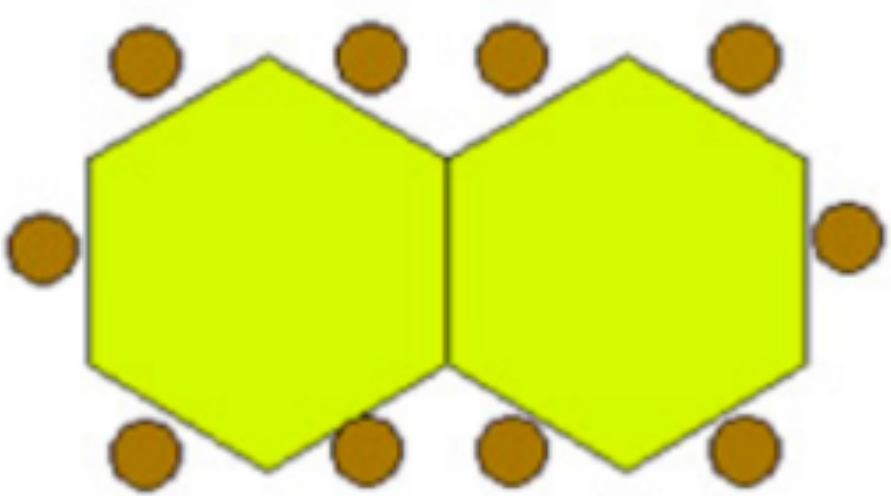
The Teddy Bears' Banquet

How do you count the bears?

The Teddy Bears' Banquet



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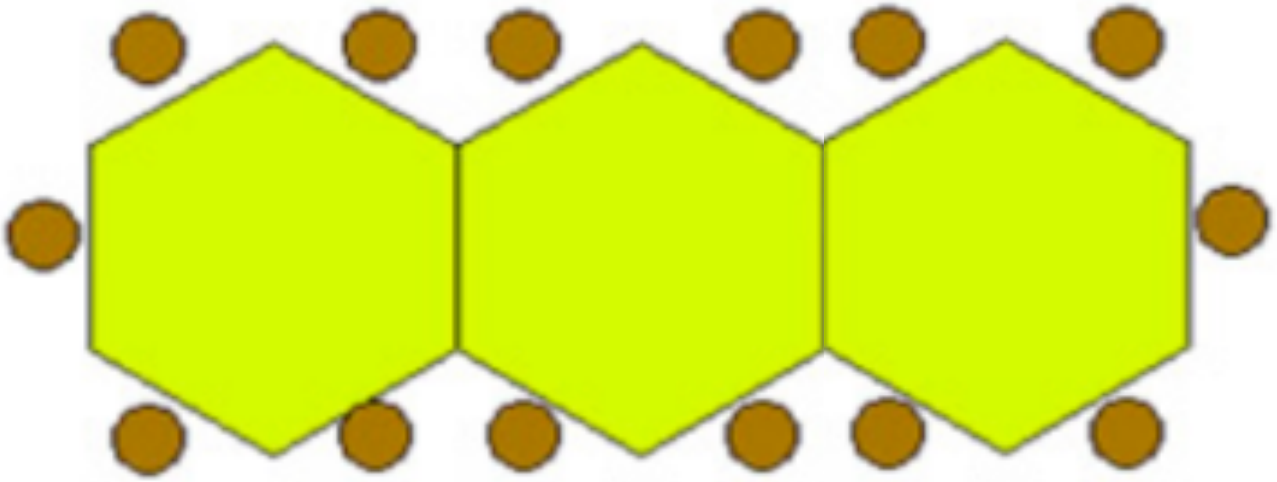


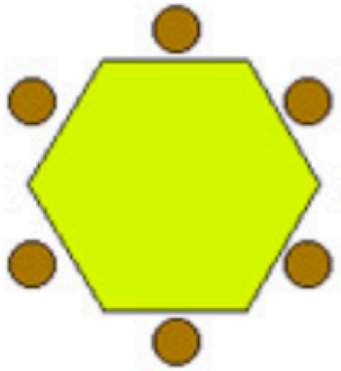
How do you count the bears?

The Teddy Bears' Banquet

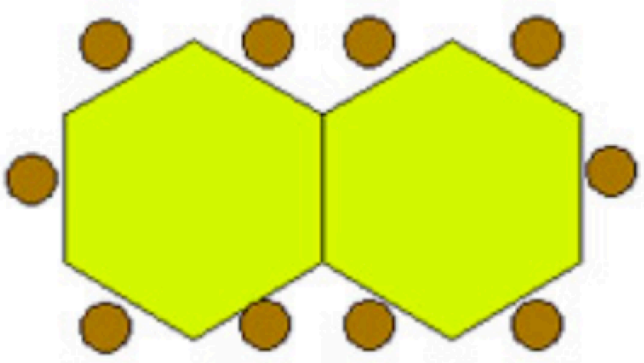
How would you count the bears at 4 tables?

The Teddy Bears' Banquet

Ursinus Hotel is one of the world's few hotels just for bears. The tables in its banquet room are regular hexagons with room for one seat along each side. In other words, one table standing alone seats six bears.

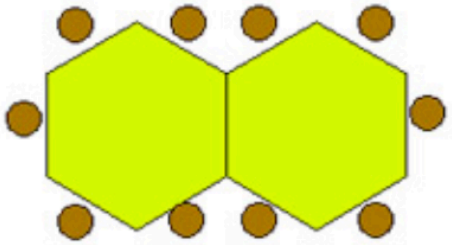


To make more room for dancing at the Teddy Bears' wedding banquet, the staff arranges the tables in a long row along one side of the room. When they connect two tables together, here's how the seating looks:



The Teddy Bears' Banquet

How many guests could sit at 10 tables?
25 tables?
100 tables?



Extra 1: Use, words, numbers and/or symbols to write a rule for the number of bears that can sit at any given number of tables.

Extra 2: How many tables would it take, arranged in one straight row, to seat 120 bears?

The Process

- Think about & launch a task
- Collect student work
- Make sense of the student work
- Reflect on the task in light of the student work
- Figure out what mathematics the students' thinking has set them up to think about
- Make a plan to support students to think about the math

”What Math Can Students Learn?”

In the US, we often ask ourselves, “What math do students need to know to answer this question?”

In Japan, teachers often ask themselves, “What math can trying to answer this question set us up to learn?”

-Phil Daro

Looking at Student Work

- Look through the student work
- Scissors and highlighters are available
- **Goals:**
  - **notice things that interest you; wonder, rather than assume**
  - **compare student approaches; sort into meaningful clusters**
  - **think about the class**
  - **think about individuals**

What's Interesting About This Task?

What's Interesting About This Work?

What Could Students Learn By:

- Comparing two different answers?
  - In what situations would this answer be right?
  - What thinking led to this difference?
- Comparing two correct solutions?
  - How do you see _____ in both solutions?
- Generalizing or applying?
  - How would the answer change if we changed _____?

Make a Plan

- What 2-3 pieces of student thinking will you have students reflect on?
- What questions will you ask?
- What will you draw students' attention to?
- What new math are they ready to think about because of their work on Teddy Bears' Banquet?

BYOSW: Why It Matters

- Professional Development that is:
  - Ongoing
  - Grounded in the work of teaching
  - Blends learning content, learning about kids, and doing the work of teaching
  - Is immediately useful
  - Leads to immediate feedback
  - Is local and specific and grounded in OUR kids, not ideal kids or pretend kids

NCTM's Teaching Practices

- Implement tasks that promote reasoning and problem solving
- Use and connect mathematical representations
- Build procedural fluency from conceptual understanding
- Support productive struggle in learning mathematics
- Elicit and use evidence of student thinking

Teacher Muscles We Are Working:

- Knowing learning progressions
- Recognizing informal ideas becoming more sophisticated
- Making inferences about student thinking & questioning to check our assumptions
- Listening
- Anticipating student strategies
- Being aware of reasons to sequence strategies so you can revise if needed
- Collaborating effectively
- Looking at somebody's wrong answer and figuring out where that thought process came from
- Deciding what to raise in the whole group vs. check in individually
- Making decisions based on a clear instructional goal
- Understanding/recognizing the difference between misconceptions & silly errors
- Keeping the progression of the whole year in mind – knowing what to do with kids who are advanced/behind
- Setting up a discussion so every kid has an entry point

Make a Plan

- What happened in this session that you want teachers at your school to do?

- What would it take to make that happen?

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