Lesson **LAUNCH** and Lesson **CLOSURE**: More than Just a **BEGINNING** and an **END**…

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Let’s Mingle!

1. When I say 

you will start mingling.

2. When I say 

will call out a pair, triad, quartet.

3. Find that number of people to be in your group and answer the question.

Let’s Mingle about Math!

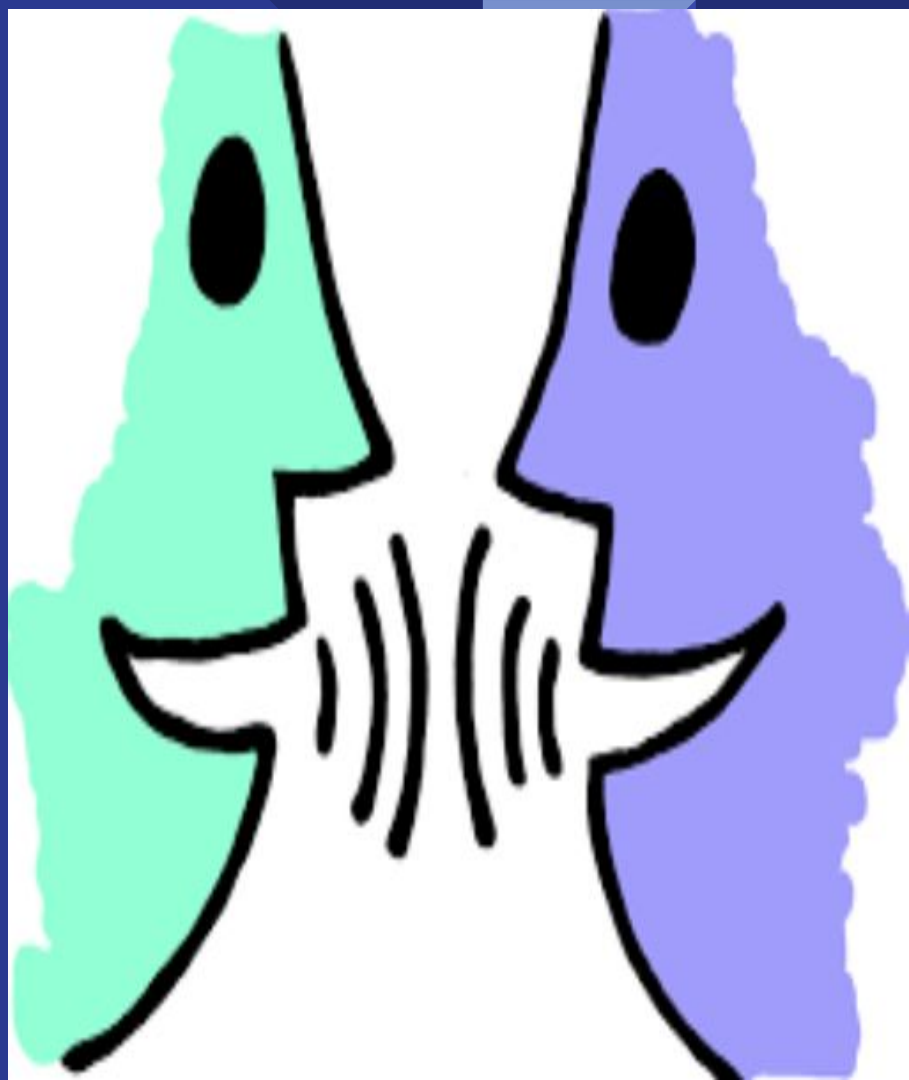
Pair - Describe a typical beginning to a lesson.

Triad - What does the student engagement look like?

Quartet - Who seems to engage and access the lesson content?

Table Talk

1. Describe a typical beginning to a lesson.
2. What does the student engagement look like?
3. Who seems to engage and access the lesson content?



Lesson Launch

The first five minutes is the most crucial, and, often, underappreciated, part of a lesson. At this time, students decide whether or not to fully engage in the task (Lang, 2016).

Let’s Play… Which one is it?
Launch or Closure?

- Small group
- Whole group
- Discourse Rich
- Invoke Curiosity
- Make the math visible
- Provide opportunities for students to access the task
- Direct Instruction

- Multiple Representations
- Connect Learning intentions
- Make sense of the task
- Facilitate formative assessment
- Lift up students’ strategies

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Why is the Lesson Launch SO Important?

Opportunity to ALWAYS:

- Link to the lesson with INQUIRY
- Engage students in reasoning and sense-making activities
- Provide entry points for all learners
- Provide equitable learning opportunities
- Develop students' number sense
- Support Students' Retention
- Formatively Assess

Opportunity to SOMETIMES:

- Connect directly to the lesson task
- Establish thinking routines

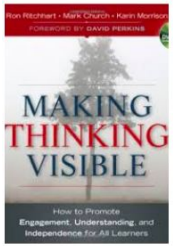
What to Consider?

- **LESSON PURPOSE**
- Students' needs
- **Mathematical standard**
- **Mathematical practices**
- Students' prior knowledge
- Lesson intentions
- Lesson purpose
- Students' interests

Launching a Lesson with Inquiry

- Some of these things are not like each other AKA Which One Doesn't Belong
- Notice and Wonder
- See, Think, Wonder
- Zoom
- Numberless word problem

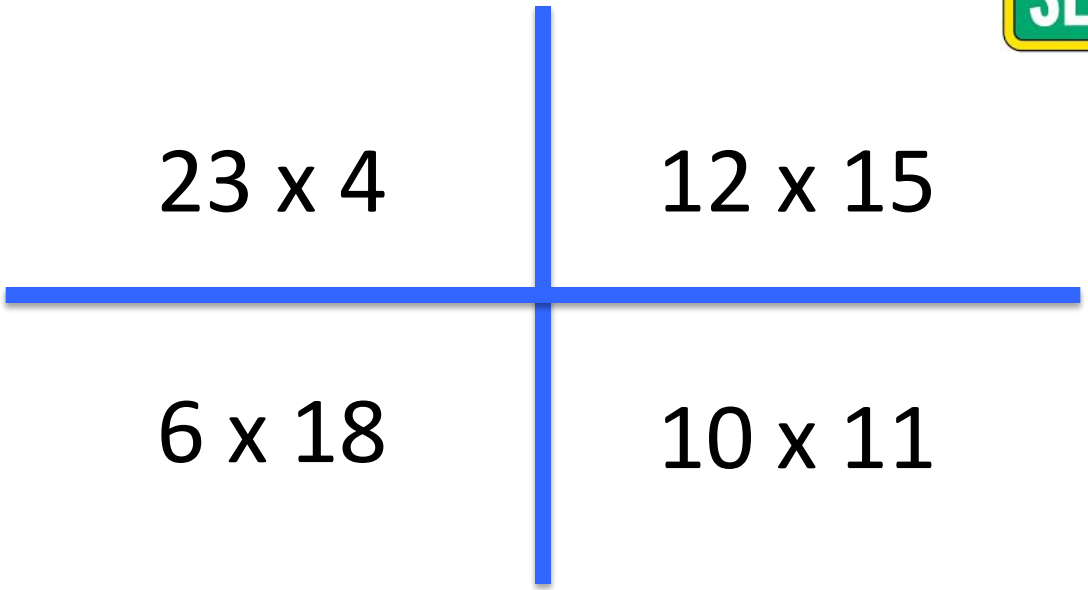
Ritchhart, R., Church, M., & Morrison, K. (2011). *Making thinking visible: How to promote engagement, understanding, and independence for all learners*. Hoboken, NJ: John Wiley & Sons, Inc.



Some of these things are NOT like each other.

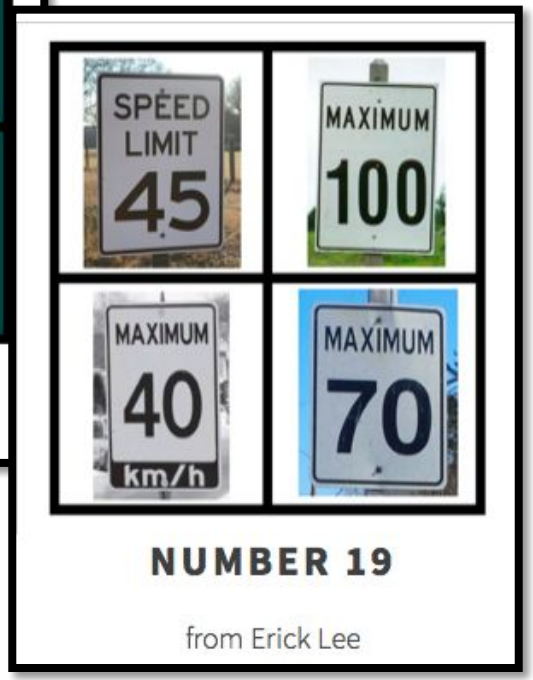
Some of these things are KIND of the same.

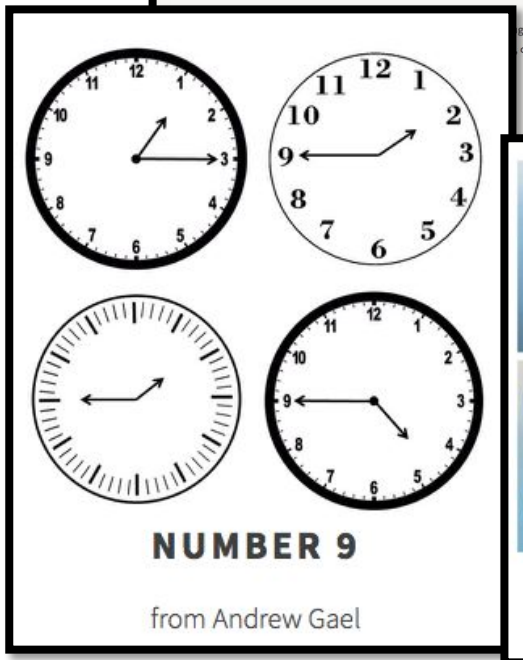
Can you tell me?

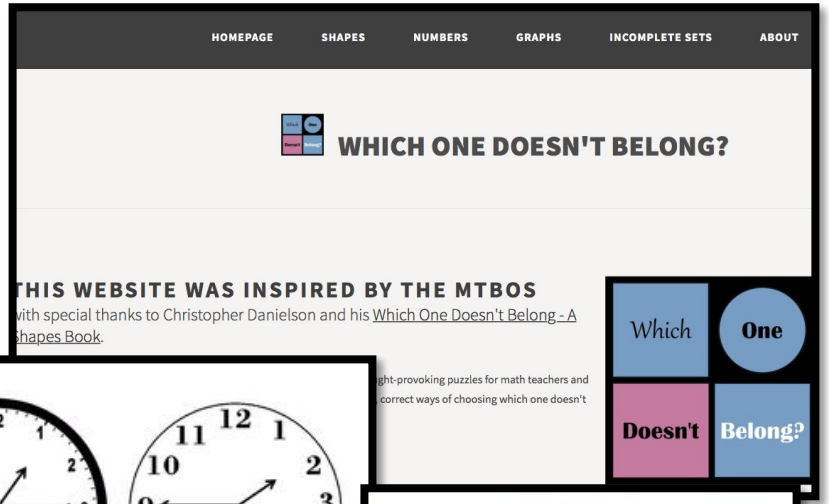


Which One Doesn't Belong?

/wodb.ca



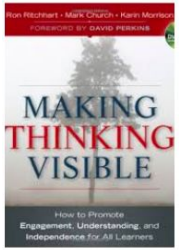




This Lesson Launch is well suited for.

- Procedural Fluency
- Geometry
- Mathematical Structure

See – Think - Wonder



This **Launch** stimulates curiosity and stimulates connections to ideas.

Ask:

- What do you see?
- What do you think about that?
- What does it make you wonder?

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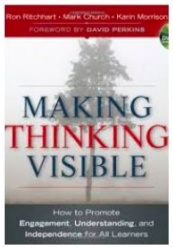

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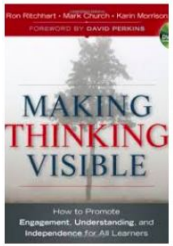


Lesson Goal (s)

Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

100 can be thought of as a bundle of ten tens — called a "hundred."

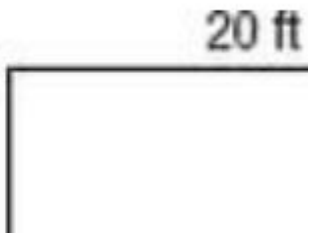
Zoom IN

- Learners play close attention to detail and make inferences.
- As each section is revealed, students add to prior inferences, change their minds completely, or synthesize the information.

Ask:

- What do you see or notice?
- How does this relate to mathematics?
- Have any of your previous ideas changed?

Zoom



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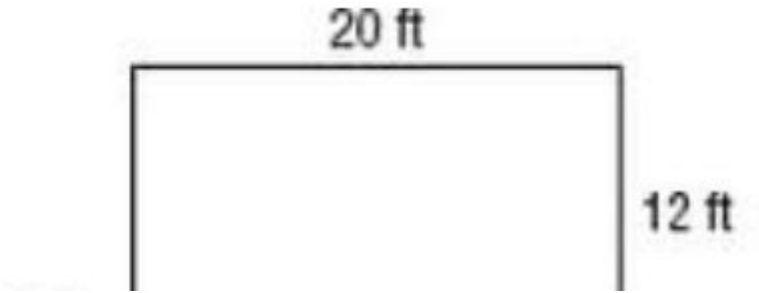

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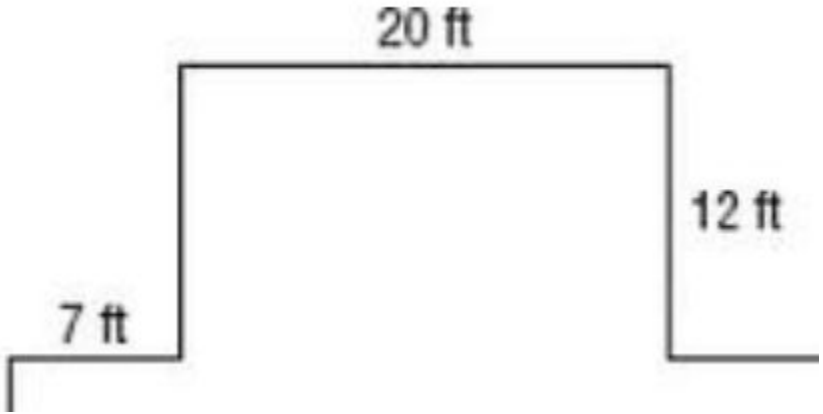

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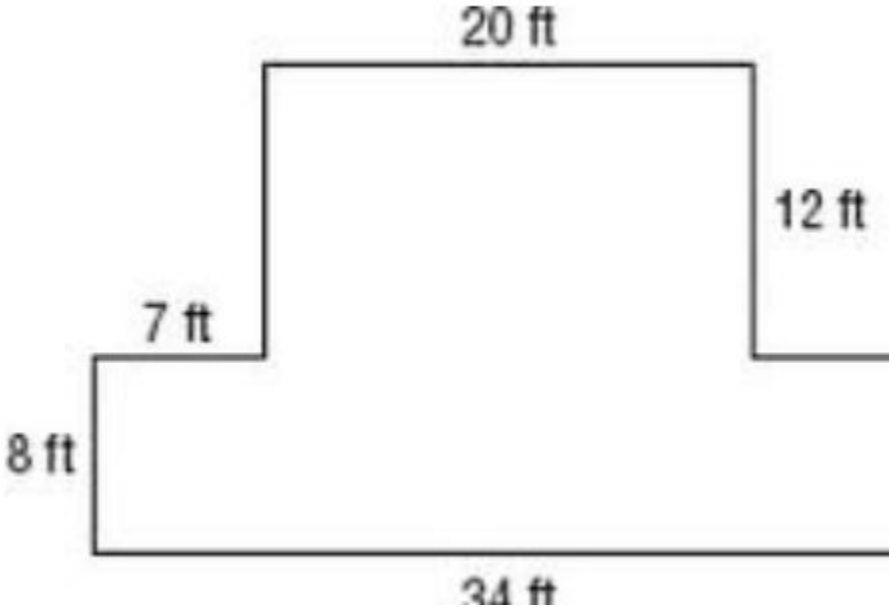

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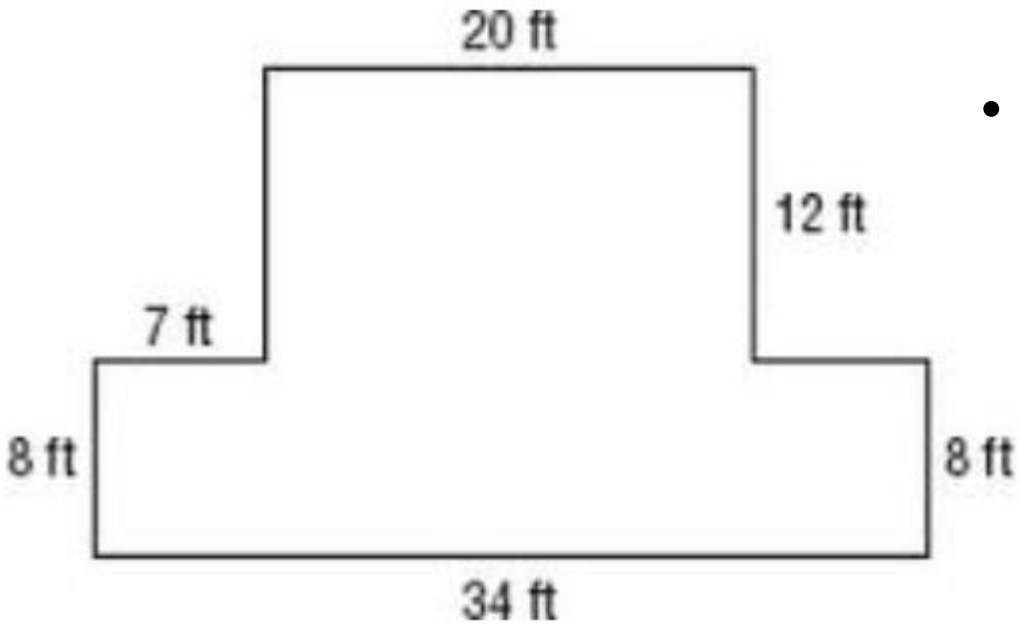

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Lesson Goal(s)

Grade 4: Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor*.

Grade 6: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Notice and Wonder

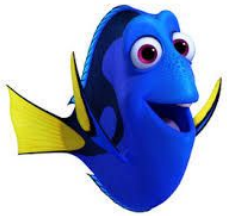
– Prompt students to notice
– Record students' notices.
– Prompt students to wonder.
– Record students' wonders.
– Use the wonders to link to the lesson task.

Notice and Wonder

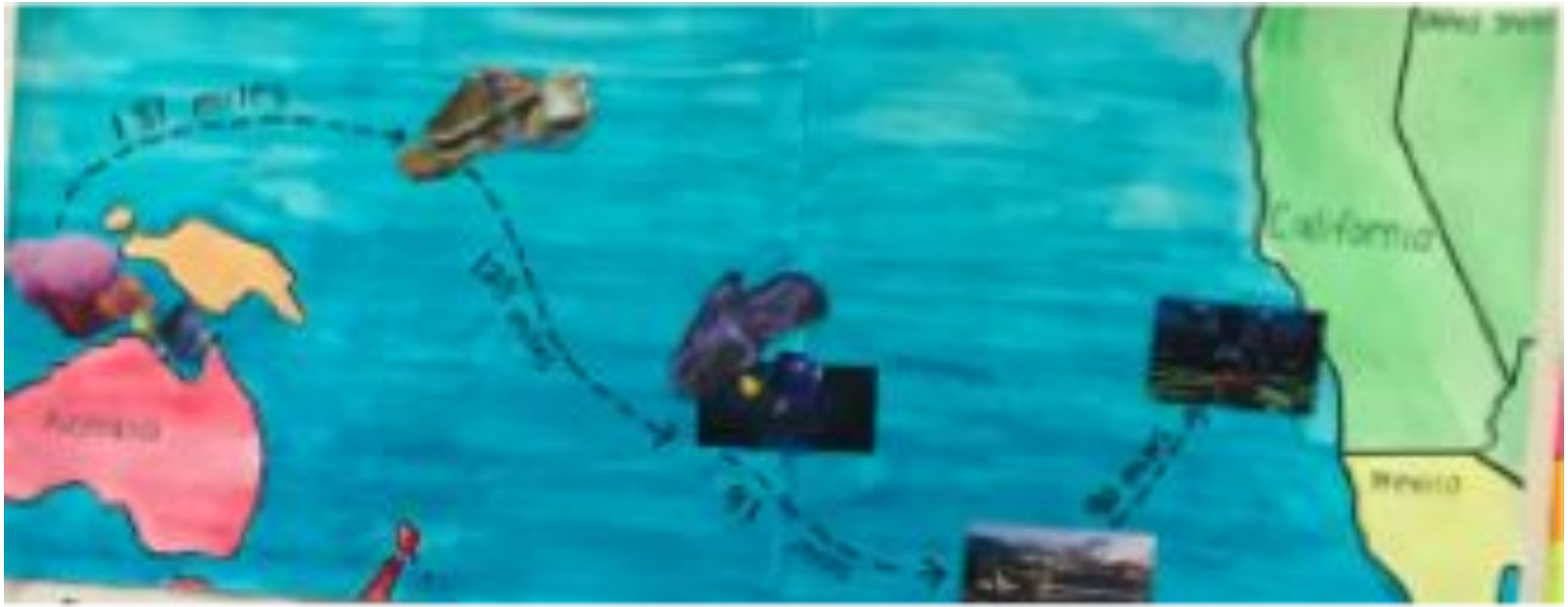
Lesson developed by Jessica Steinbach
Stevenson University

→ Always write down what they say even if it does not appear to be relevant.

→ Reveal information in pieces before continuing the notice and wonder.



What do You Notice? Wonder?



Lesson developed by Jessica Steinbach
Stevenson University

Second Graders Notice and Wonder

"I notice that there is a map."

"I notice there is a turtle."

"I notice that there are miles."

"I notice a boat."

"I wonder if someone is taking a trip."

"I wonder how long it is?"

"I wonder what time it is in Australia?"

Lesson developed by Jessica Steinbach
Stevenson University

Dory thinks she will travel 326 miles. How can we find out? Can you help Dory figure out the distance?

⟶ Students will be able to add within 1000 by reasoning about and solving a problem

→ I can add two and three digit numbers using strategies I already know by figuring out the total distance Dory swam on her journey.

Lesson developed by Jessica Steinbach
Stevenson University

Video Notice and Wonder

Lesson developed by Amirah Russell
Stevenson University

Students watch Michelle Carter throw the shot put. Record students' notices and wonders.

Lesson Goal: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used

Notice and Wonder

Students watch Michelle Carter throw the shot put. Record students' notices and wonders.

https://www.youtube.com/watch?v=3ZuRrDITMSM

Numberless Word Problem Lesson Launch

Elle and Marcus cut out stars to decorate the classroom. Elle cut out gold stars. Marcus cut out silver stars. How many more stars did Elle cut than Marcus?

Numberless Word Problem Lesson Launch

Elle and Marcus cut out stars to decorate the classroom. Elle cut out gold stars. Marcus cut out silver stars. How many more stars did Elle cut than Marcus?

Numberless Word Problem Lesson Launch

Elle and Marcus cut out 23 stars to decorate the classroom. Elle cut out 15 gold stars. Marcus cut out 8 silver stars. How many more stars did Elle cut than Marcus?

How much did you know about solving the problem?

Let’s Try a Lesson Launch for a Specific Task.

See – Think - Wonder

Let's Try it as a launch to a Lesson..

What do you see?

What do you think?

What questions do you have?

How Many?

First, estimate the total and explain your estimate.

Then, Show HOW you counted.

Find new ways to count. What if each item represented a different value?

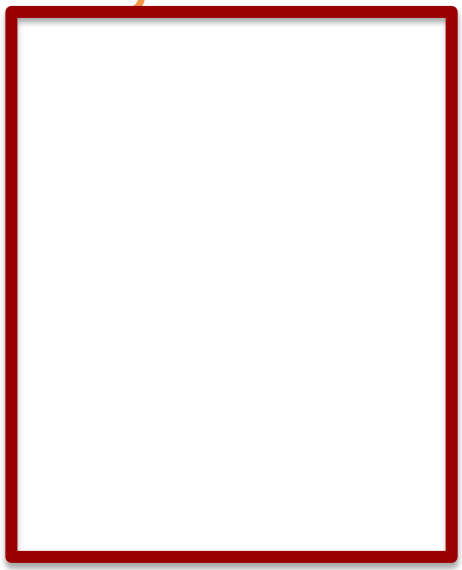
How can you prove your count?

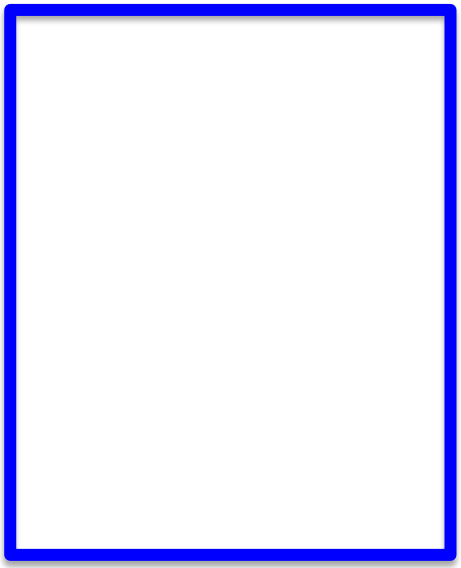
Estimate

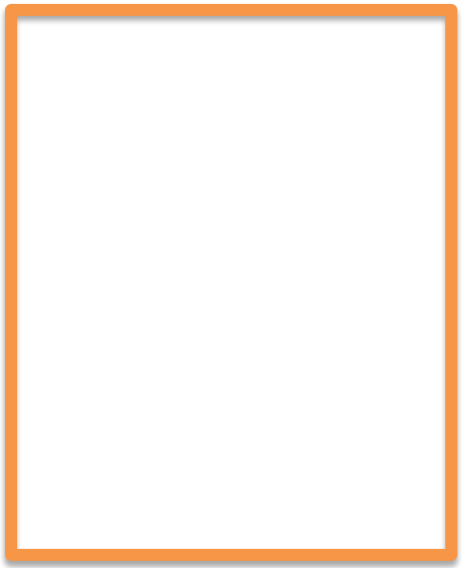
Too Low

Just about Right

Too High







K and 1: How many?

- Show and Record how you counted.
- Find at least two ways to count.

Lesson Goal(s)

- Count to answer how many
- Count to 100 or 120 by ones and by tens.
- Count forward beginning from an given number
- Write and represent numbers
- Count to tell the number of objects
- Connect counting to cardinality
- When counting objects same the numbers
- Understand the last number name, tells the number counted

Grade 2 and 3: What is the value?

- What if each object is worth 10? 100, 1/2?
- Prove how you know with words, representations, and numbers.

Lesson Goal(s)

- 100 can be thought of as a bundle of ten tens — called a "hundred."
- Count within 1000; skip-count by 5s, 10s, and 100s.
- Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.
- Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.

Grade 4 and 5: What is the value?

- What if each object is worth 1.5, 0.1, 0.01)?
- Prove how you know with words, representations, and numbers.

Lesson Goal(s)

- Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

What was the role of the launch in this lesson?

Lesson Closure

Consider the idea of Freire’s Concientizacion:

This is a time when ideas brought forward in during the lesson can come together to make meaning of content. For us, this is our opportunity to make the mathematics meaningful.

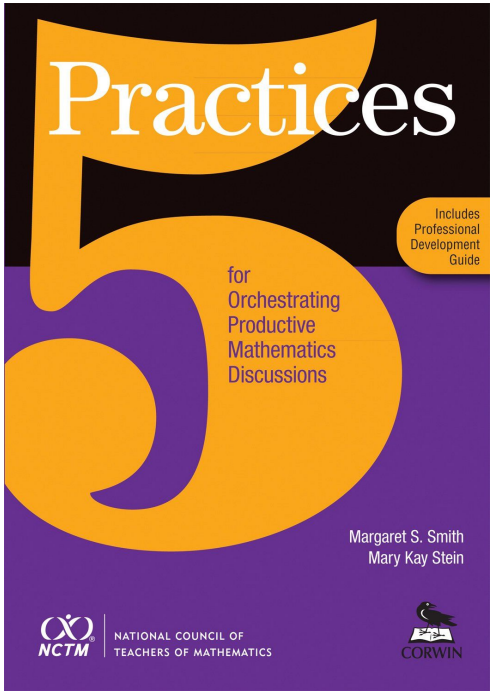
Lesson Closure

Lesson Closure

- Orchestrating a class discussion to close the lesson
- Opportunity to collect Formative Assessment feedback
- Acknowledging the students' comfort with their understanding

5 Practices for Orchestrating Productive Mathematics Discussions

1. Anticipate
2. Monitor
3. **Select**
4. **Sequence**
5. Connect



Smith, M. S., & Stein, M. (2011). *5 Practices for Orchestrating Productive Mathematics Discussions.* Reston, VA: NCTM

Gallery Walk

Find the Same Grade Level Task

Which Select

Sequence

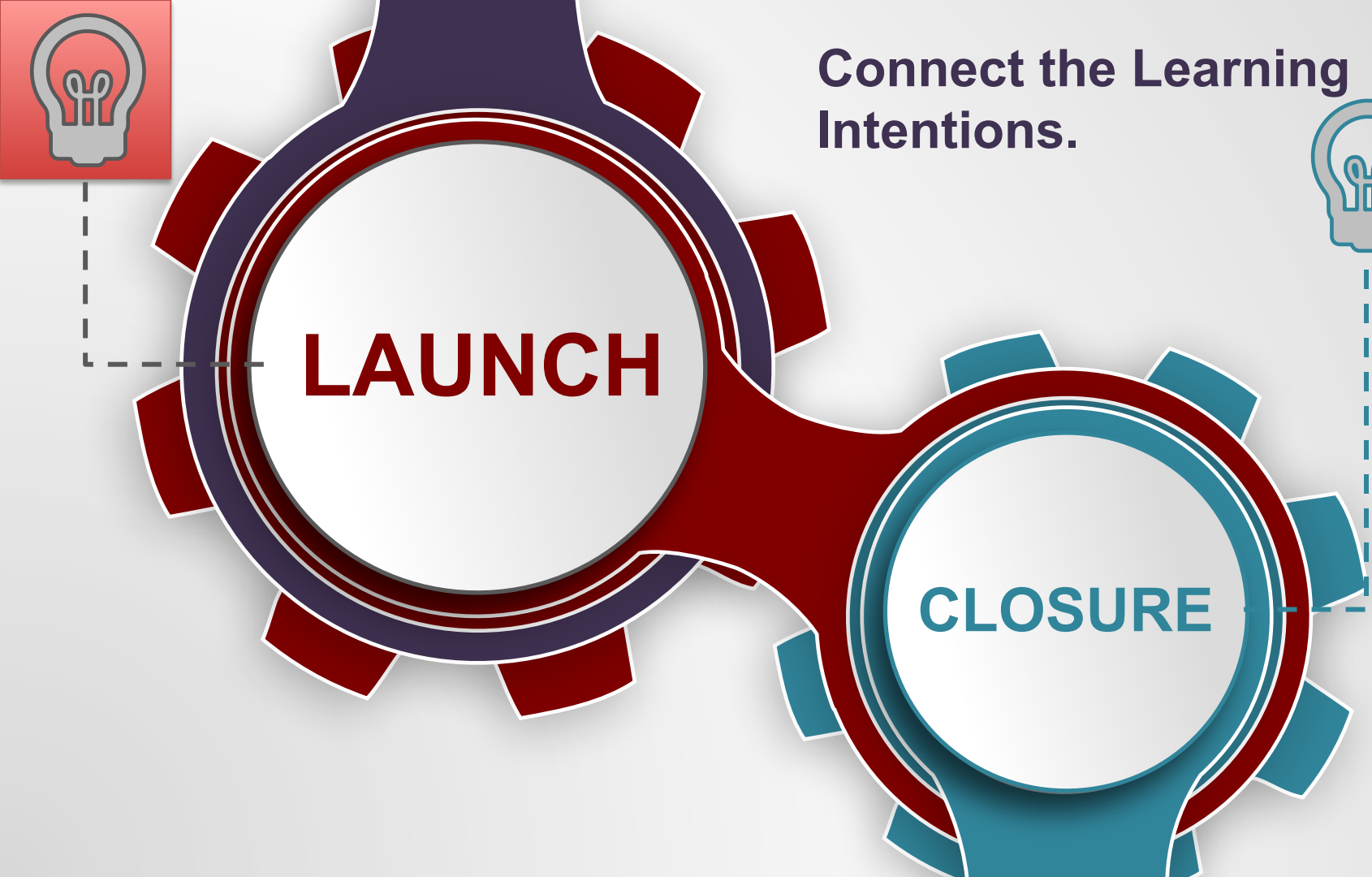
Goal

Selecting & Sequencing Student Work to Facilitate Discourse

Examine the work

2. Select: Which work would you want to discuss as a class?
3. Sequence: In what order? Why?

Connect the Learning Intentions.



CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.
CCSS.MATH.PRACTICE.MP3 Construct viable arguments and critique the reasoning of others.

Lesson Objective

Students will understand that one number can be composed in many ways.

Task

There were eight children on the trampoline. Some were boys and some were girls.

Lesson Reflection

1. Do students understand that arrangement does not affect value?

2. Do students use a variety of techniques when problem solving?

EVIDENCE-Based Discussions

Small Group

- Notice & Wonder with problem (before)

———————————————————————

- Share combinations:
  What do we notice?

- What strategies did we use to create combinations?

Full Group

- Share combinations, record on sentence strips (structure)
  Examples: 1 + 7 = 8, 7 + 1 = 8
  & 6 + 2 = 8, 7 + 1 = 8

- Look at the combinations:
  "What do we notice?"

- Reflect on wonders:
  "Did we answer any of our questions?"
  HOW/WHY? Evidence!

- Additional discussion points:
  Similarities, differences, favorite combinations, decomposing

Student Evidence - Full group

I notice that…

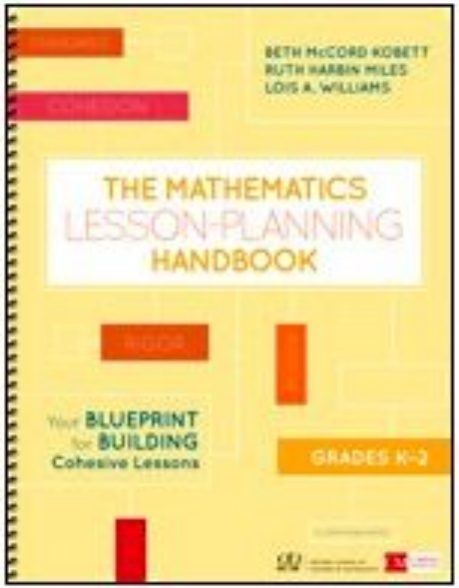
- We all used different numbers
- One time we had 5 girls and 3 boys and another time we had 3 girls and 5 boys
- We made a pattern with our combinations
- We always had 8 girls and boys.

Some “Wonders” answered - I wonder…

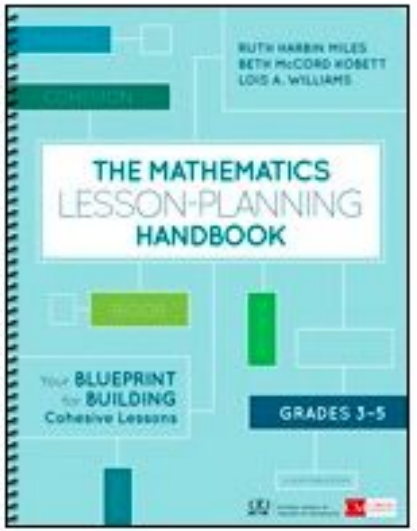
- If we can mix the girls and boys
- How many we can make
- If I will add or subtract to find my answer

Teaching Practices and SFMP

Want to Explore More? Check out these Lesson Planning Books!



Sold in the NCTM Bookstore, Amazon, and the Corwin website!



Questions?

Email me at
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