



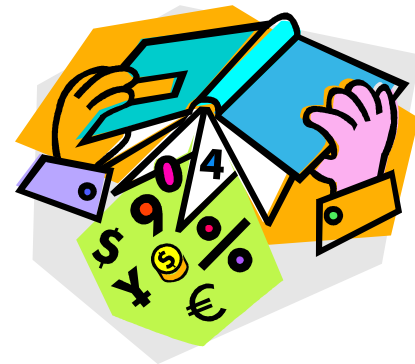
Sacramento City Unified School District
Putting Children First

Math Common Core Summer Institute

Summer Institute

Grades: K – 2

Day 2





Agenda

- String Challenge
- Review CCSS
- Standards Interpretation

Break – 10 minutes

- Text-Based Discussion
- Phil Daro
- Instructional Shifts

Lunch – 1 hour

- Instructional Shifts Continue
- Trying on the Work
- Student Work Examination



String Challenge

- Get into a group of 4
- Use the string to create the geometric shapes shown on the handout
- Practice each shape
- Be prepared for timed challenge, all the shapes, in order, as fast as possible

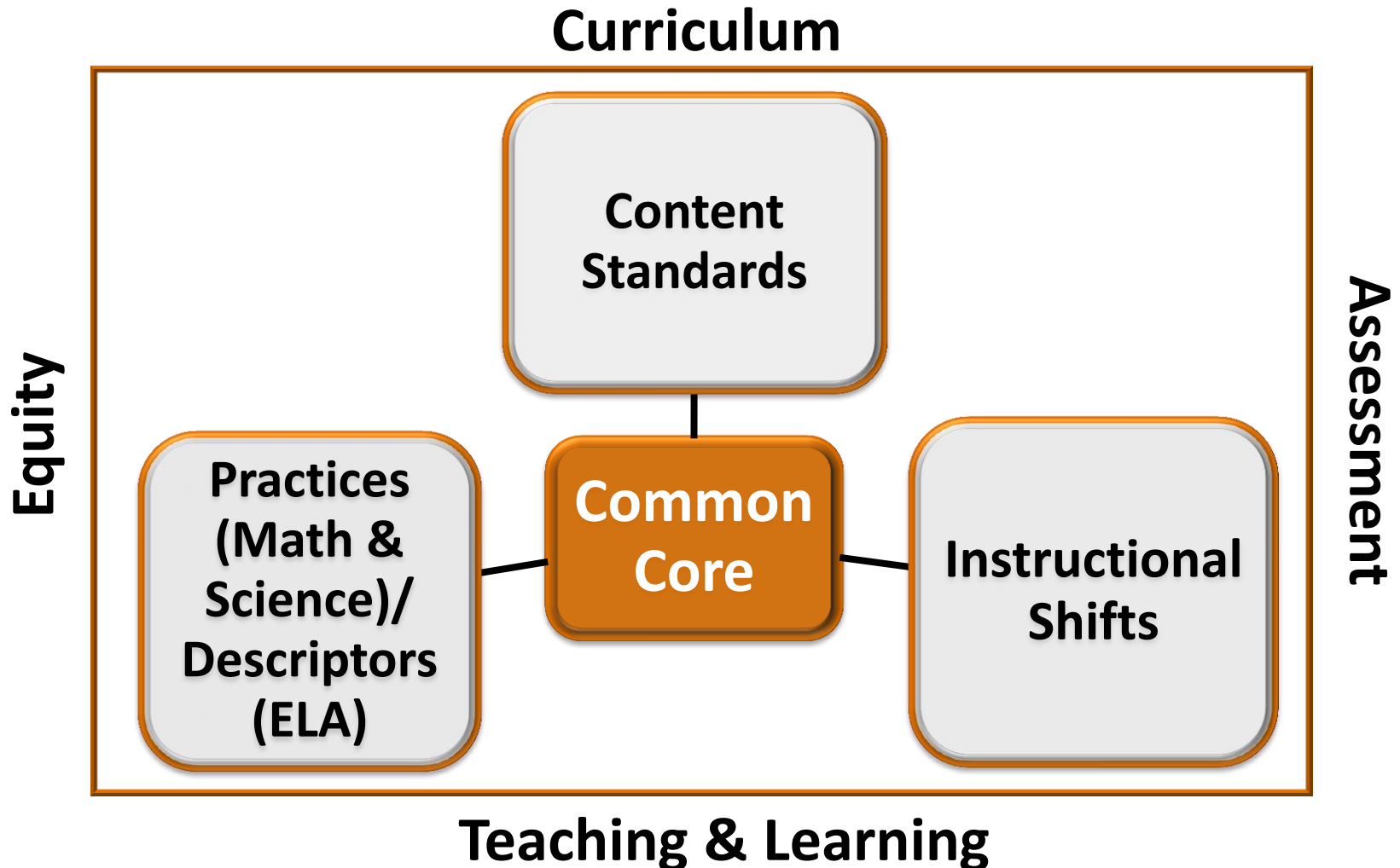


String Challenge Debrief

- What role did each of you take during the challenge?
- How did the roles affect the group as you progressed through the task?
- Thinking about your experience with the String Challenge, what can you do to assist your students in understanding the importance of these roles? What preparation is needed to get students working in collaborative groups?

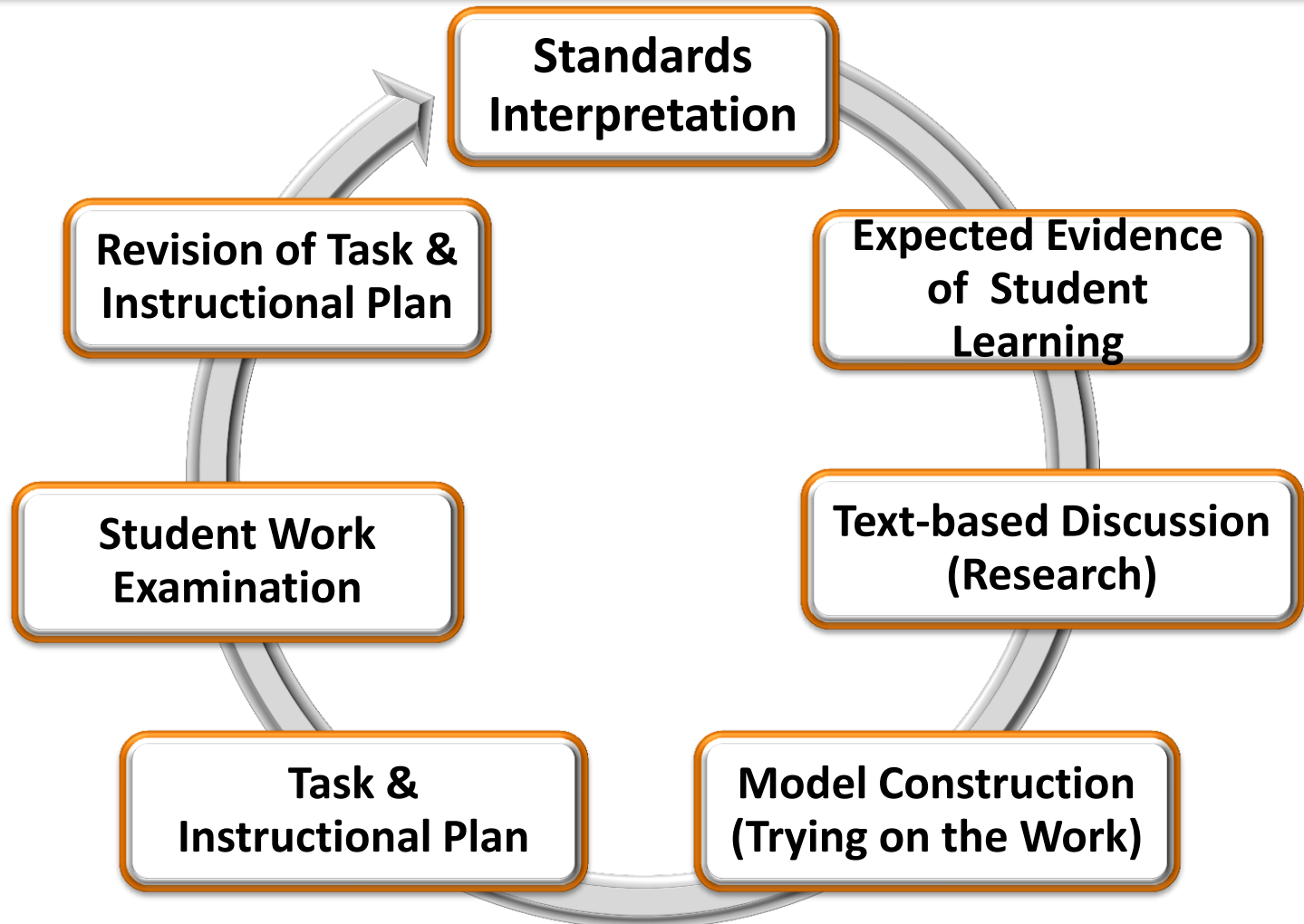


Common Core Standards Framework





Inquiry-Based Design Methodology





Learning Progression Across Domains

K	1	2	3	4	5	6	7	8	9-12
Counting & Cardinality									
Number and Operations in Base Ten						Ratios and Proportional Relationships		Number & Quantity	
			Number and Operations – Fractions			The Number System			Number & Quantity
Operations and Algebraic Thinking						Expressions and Equations		Algebra	
								Functions	Functions
Geometry									Geometry
Measurement and Data						Statistics and Probability			Statistics & Probability



Standards Interpretation

1. Read the Common Core State Standards (CCSS):
Kindergarten – 2nd grade, p. 9, p. 12, and p. 17

1. Read *The Progressions* document, pp. 2 – 10

~ commoncoretools.wordpress.com

Reading protocol:



Any aha moments

Underline

Something you want to try

Circle

Any questions



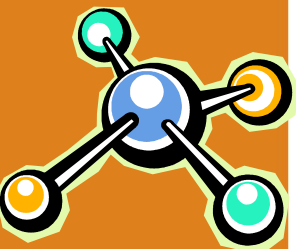
Break

10 Minutes



Text-Based Discussion

“Learning basic addition and subtraction facts is essential to children’s future success in mathematics...However, if knowing basic facts is the foundation for learning more complex computation, children must know more than how to quickly get answers on timed tests. If basic facts are to be foundational, they must be based on an understanding of the composition and decomposition of numbers.”



~ *How Children Learn Number Concepts* by Kathy Richardson



Text-Based Discussion

- Five Frame

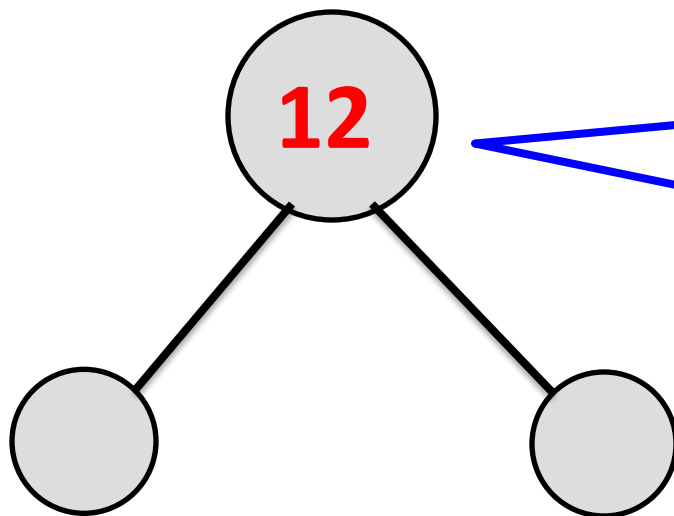
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- Ten Frame



Text-Based Discussion

- Decomposing Numbers
 - Identifying parts of numbers (also known as “Number Bonding” from Singapore Math)

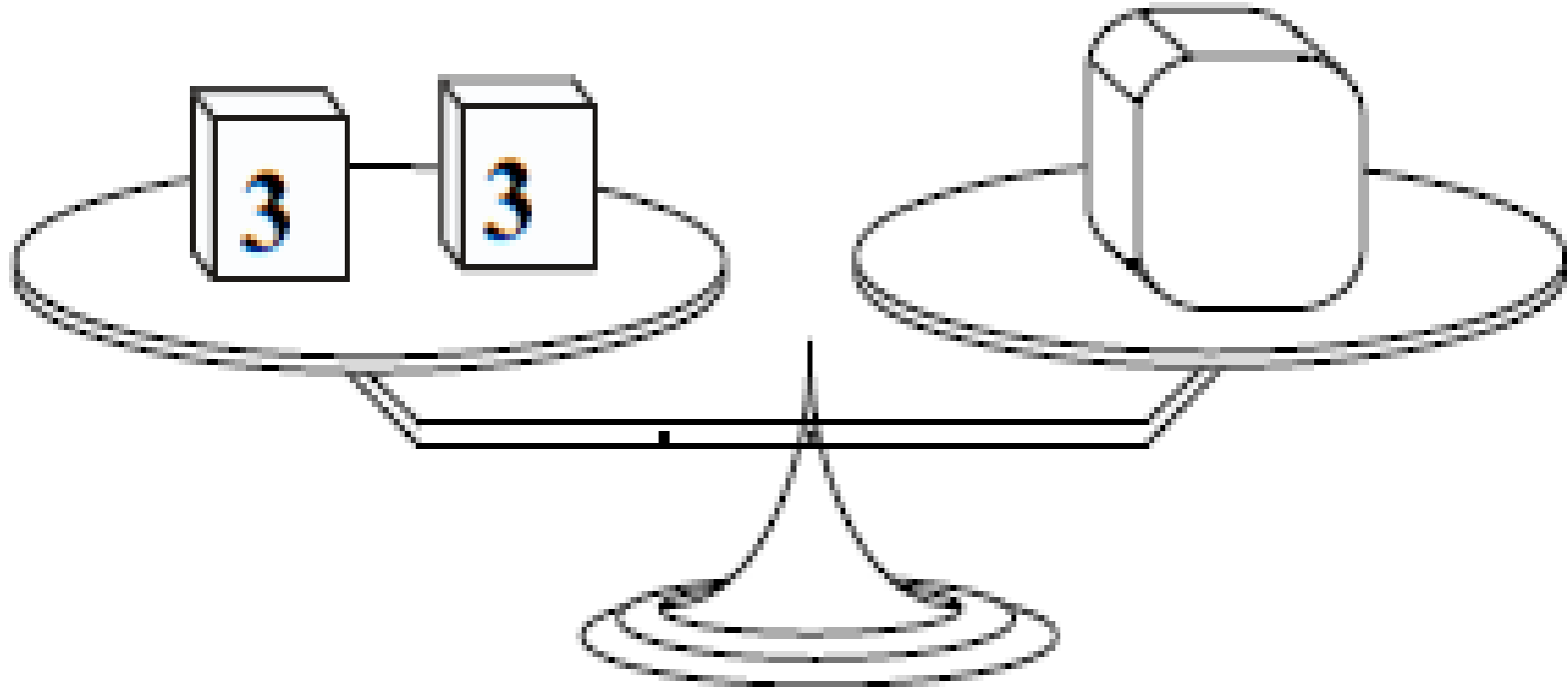


How many number bonds can you make from breaking apart 12?



Text-Based Discussion

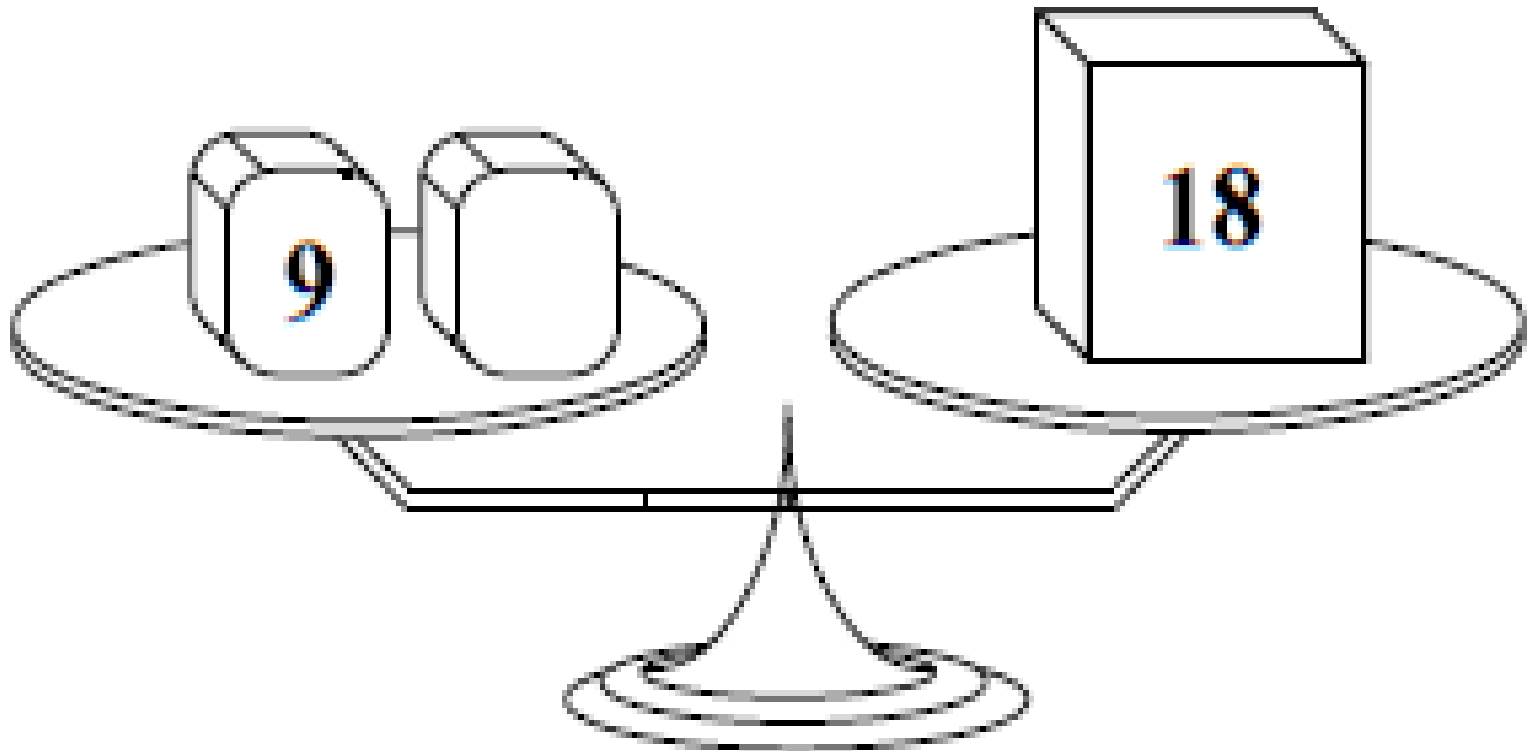
Part-Part-Whole





Text-Based Discussion

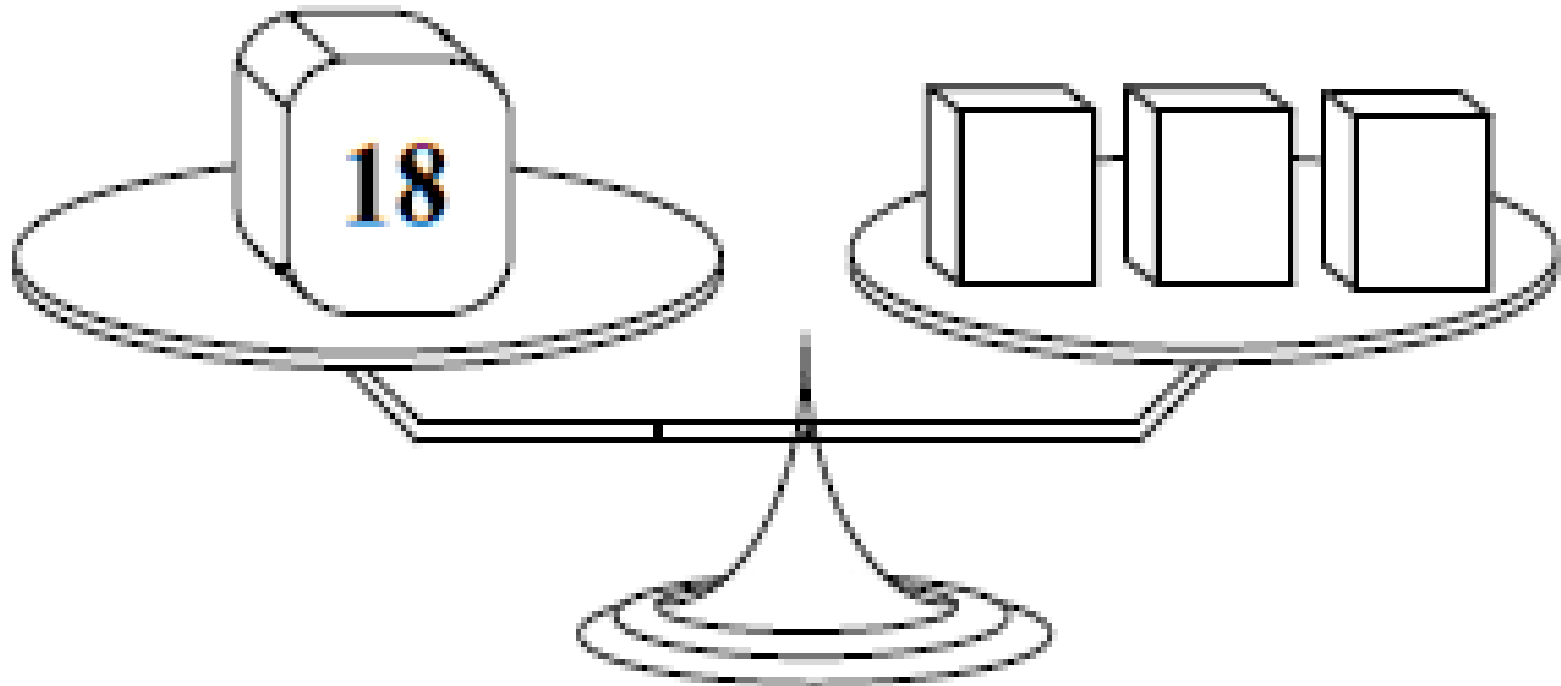
Part-Part-Whole





Text-Based Discussion

Whole-Part-Part-Part





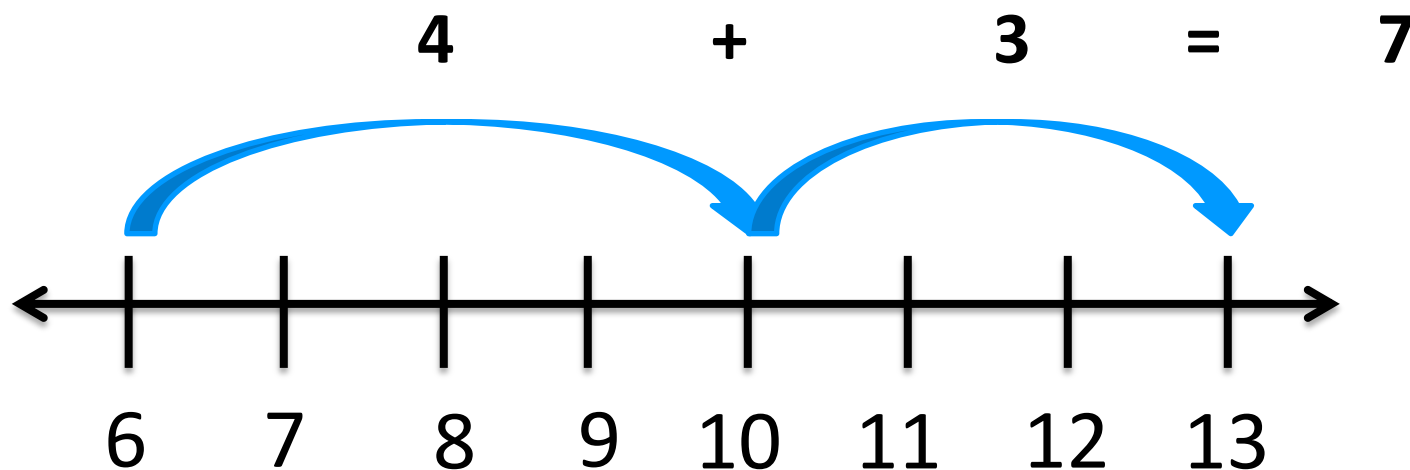
Text-Based Discussion

- Using benchmark numbers to master facts. Evaluate the following expressions:
 - $5 + 2$
 - $8 + 6$
 - $48 + 52$
 - $101 - 98$



Text-Based Discussion

- Think “addition” or adding up for subtraction facts.
 - 13 “take away” 6





Our learning purpose:

Learn how teachers and students are **shifting** their math classrooms to **promote** mathematical **reasoning**.

Focus,
coherence, and
rigor

The shifts
create more
space for depth

Classrooms are
creative,
engaged, and
even noisy



Answer Getting vs. Learning Mathematics

USA:

- **How can I teach my kids to get the answer to this problem?**

High Performing Countries:

- **How can I use this problem to teach the mathematics of this unit?**

[Phil Daro]



Phil Daro

Focus: Depth, Not Breadth




Teach at the Speed of Learning

- More time per concept
 - More time per problem
 - More time per student talking
- = less math problems per lesson

[Phil Daro]



Instructional Shifts

- Focus
 - Coherence
 - Conceptual Understanding
 - Procedural Skills and Fluency
 - Application
- Rigor
- 



Instructional Shifts

- Read “Instructional Shifts”
pages 1 - 3
~CA Draft Framework

Key Instructional Shifts

The three major principles on which the CCSSM are based are focus, coherence and rigor. As teachers work to incorporate these shifts into their practice, focus on these areas can help schools and districts develop a common understanding of what is necessary for mathematics instruction as they move forward with the implementation of CCSSM.



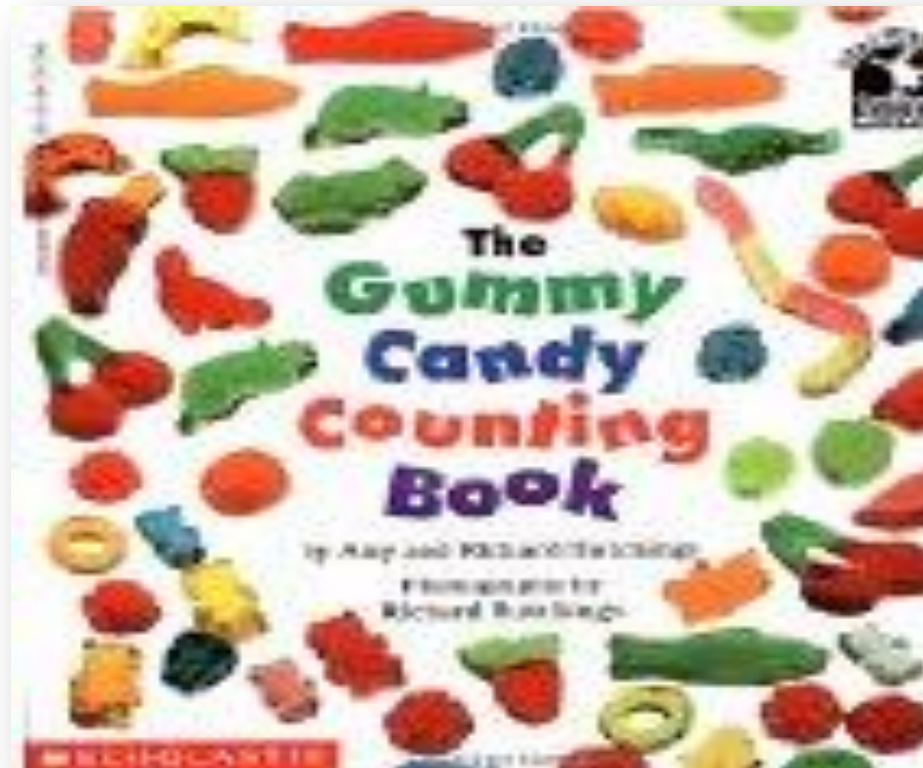
Lunch

1 Hour



Math Literacy

- Read aloud: *The Gummy Candy Counting Book*





Instructional Shift: Focus



Focus =

< Rote memorization

and

> Deep procedural knowledge
and conceptual understanding

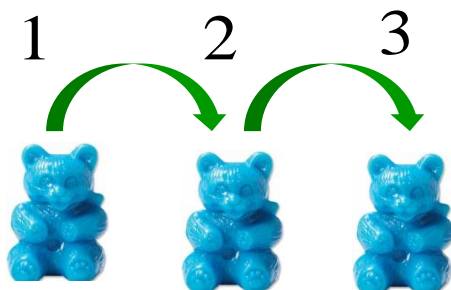




Instructional Shift: Coherence

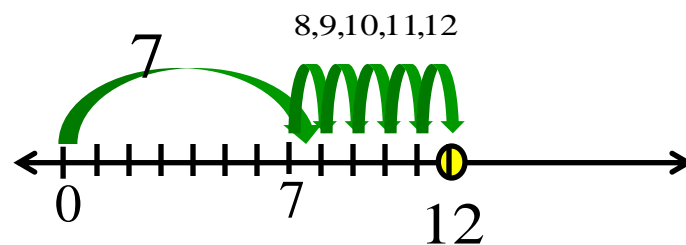
Kindergarten

Counting



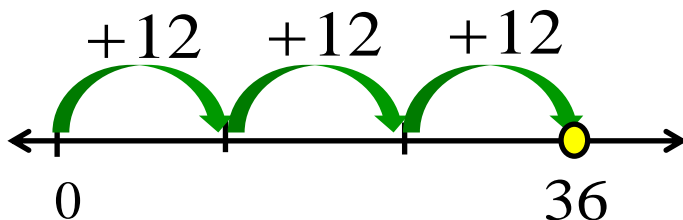
1st Grade

$$7 + 5 = 12$$



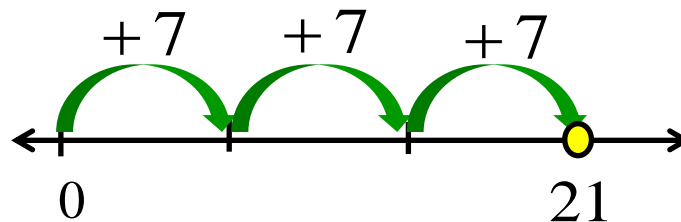
2nd Grade

$$12 + 12 + 12 = 36$$



3rd Grade

$$3 \times 7 = 21$$





Sacramento City Unified School District

Putting Children First

Instructional Shift: Rigor



Rigor means having procedural fluency and conceptual understanding.





Instructional Shift: Rigor

What can I do to make my
classroom instruction more
rigorous?



Instructional Shifts Activity

5 “Corners”

- Decide with your partner which shift is represented on your paper strip
- Find the corner corresponding to your shift
- Tape your strip to the poster
- Confirm with others in your corner



Instructional Shifts Activity

5 “Corners” – Gallery Walk

Rotate clockwise through each shift.

Sit down when you have seen them all.

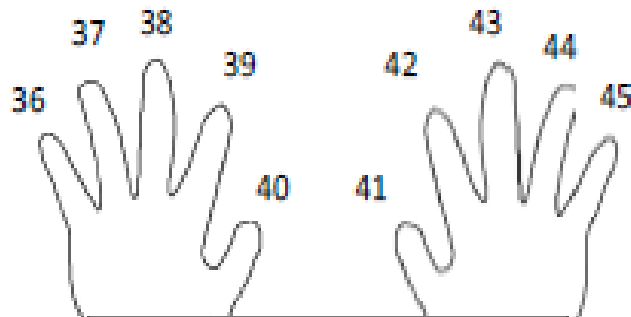


Trying on the Work

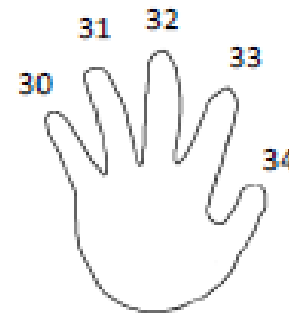
1st Grade Number and Operations in Base Ten: Composing and Decomposing Numbers

First Grade

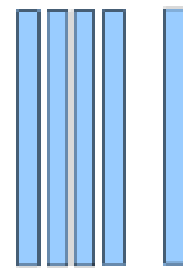
Compose and decompose whole numbers up to 20 using multiple strategies such as known facts, doubles, close to doubles, and tens and one's place.



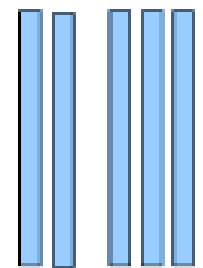
Counting Forward: $35 + 10 = 45$



Counting Backward:
 $35 - 5 = 30$



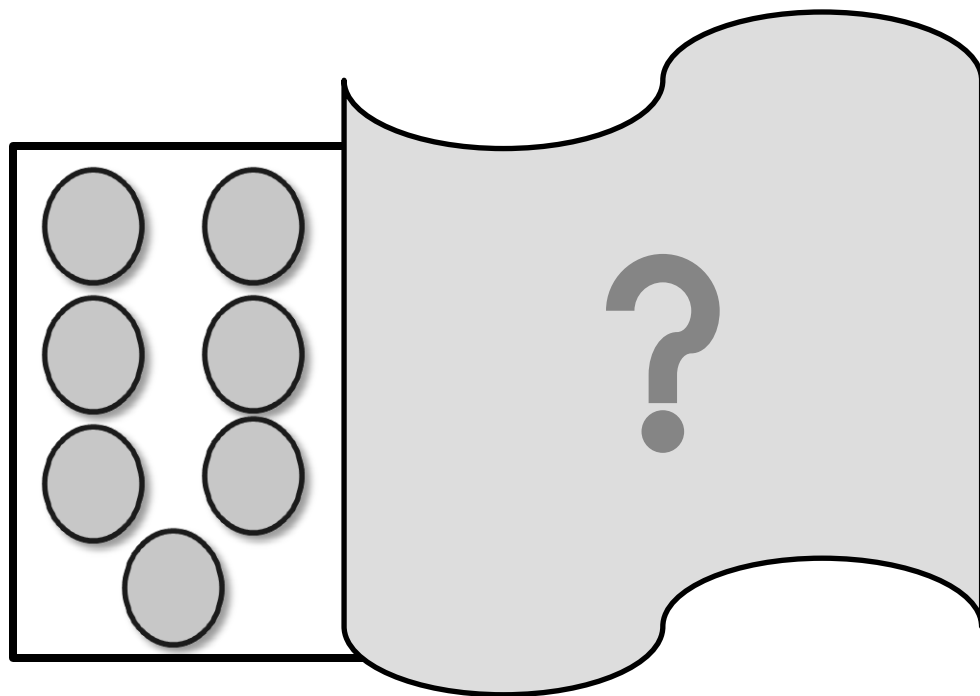
$$50 = 40 + 10$$



$$50 = 20 + 30$$



Trying on the Work

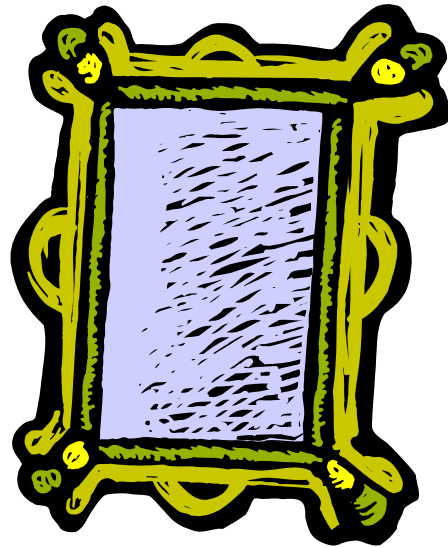
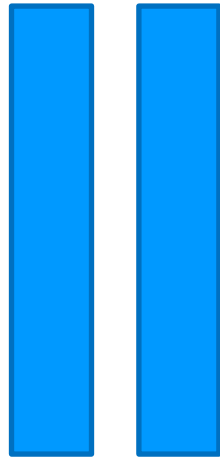


There are 12 counters in all. How many are *hidden*? Show or tell how you know.



Trying on the Work

Match Me "Game"





Trying on the Work

- What is the whole number amount we counted?
- How many tens are there?
- How many ones are there?

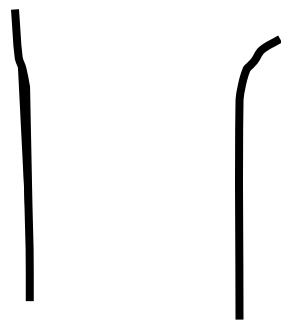


20

twenty



Trying on the Work



$$10 + 10 = 20$$

$$20 = 10 + 10$$



Trying on the Work

- Counting by tens, sketch two diagrams showing 30. Write the equations under the diagrams.
- Counting by tens, sketch three diagrams showing 60. Write the equations under the diagrams.



Student Work Examination

Student Interviews:

- Kindergartener
 - 2nd Grade



Student Work Examination

What do you know about breaking a whole number into parts?



Reflection

**On your piece of *yellow* paper
folded in half:**

- What do you see that you can use?
- What are you excited about
(Set intentions for the upcoming
school year)?



Have a great afternoon!

**Thank you, and
see you tomorrow
at 8:30 am!**