



Sacramento City Unified School District

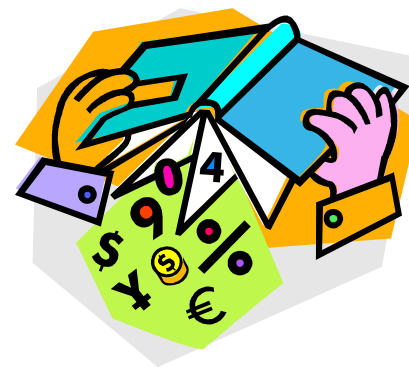
Putting Children First

# Math Common Core Summer Institute

## Welcome to Summer Institute

### Grades: K – 2

### Day 1





# Agenda

- Common Core State Standards - Math
- Marshmallow Challenge
- Standards for Mathematical Practices (SMPs)

## ***Break – 10 minutes***

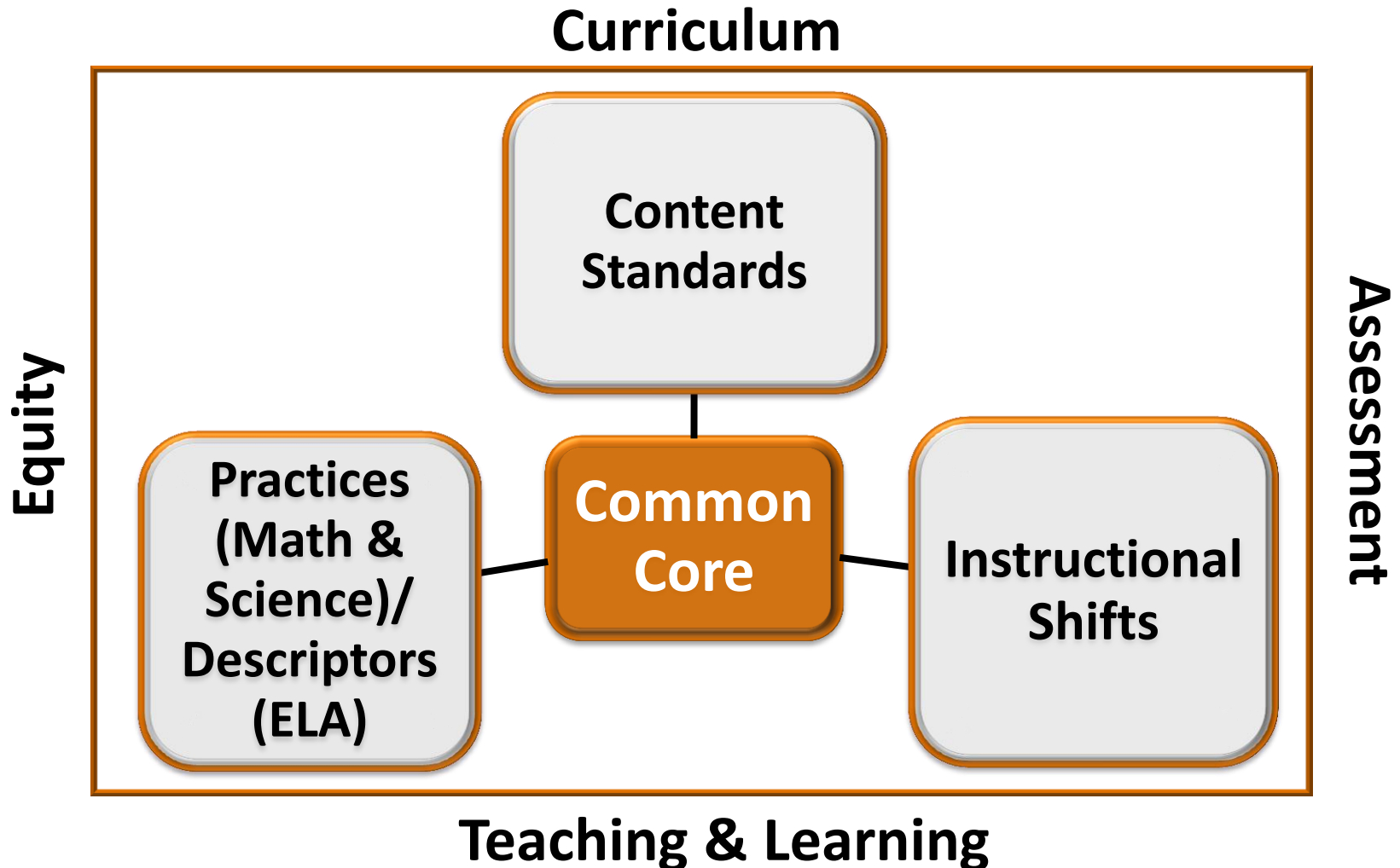
- Standards for Mathematical Practices (SMPs)

## ***Lunch – 1 hour***

- Standards Interpretation
- Expected Student Evidence
- Text-Based Discussion
- Demo Lesson
- Reflection

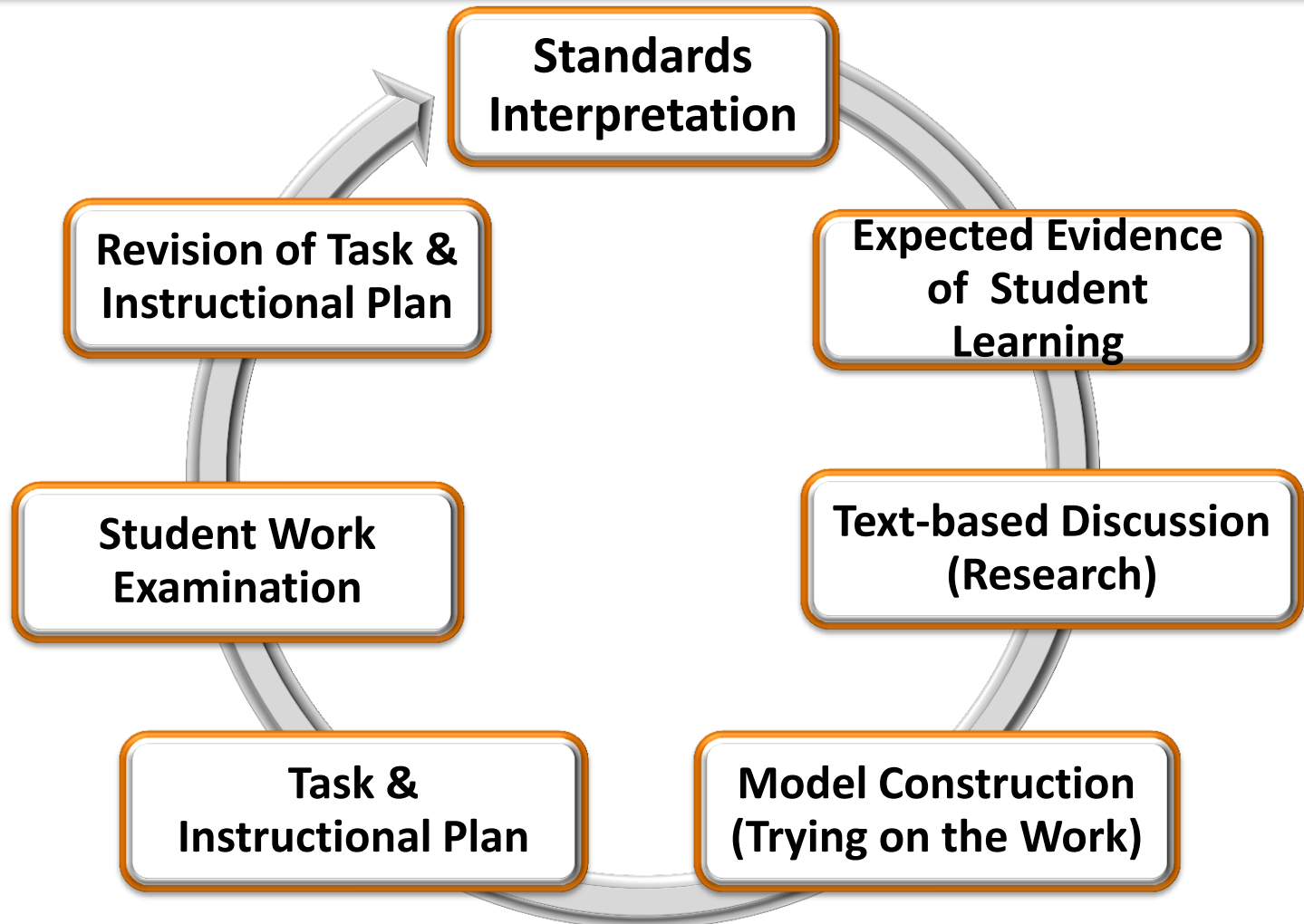


# Common Core Standards Framework





# Inquiry-Based Design Methodology





# Strategic Plan 2010-14

## Pillar One: Career and College Ready Students



## Cautions: Implementing the CCSS is...

- Not about “gap analysis”
- Not about buying a text series
- Not a march through the standards
- Not about breaking apart each standard



# Marshmallow Challenge

- Build the tallest freestanding structure
- The entire marshmallow must be intact and placed on top of the structure
- Use as much or as little of the kit provided
- Use the spaghetti, string or tape as you see fit





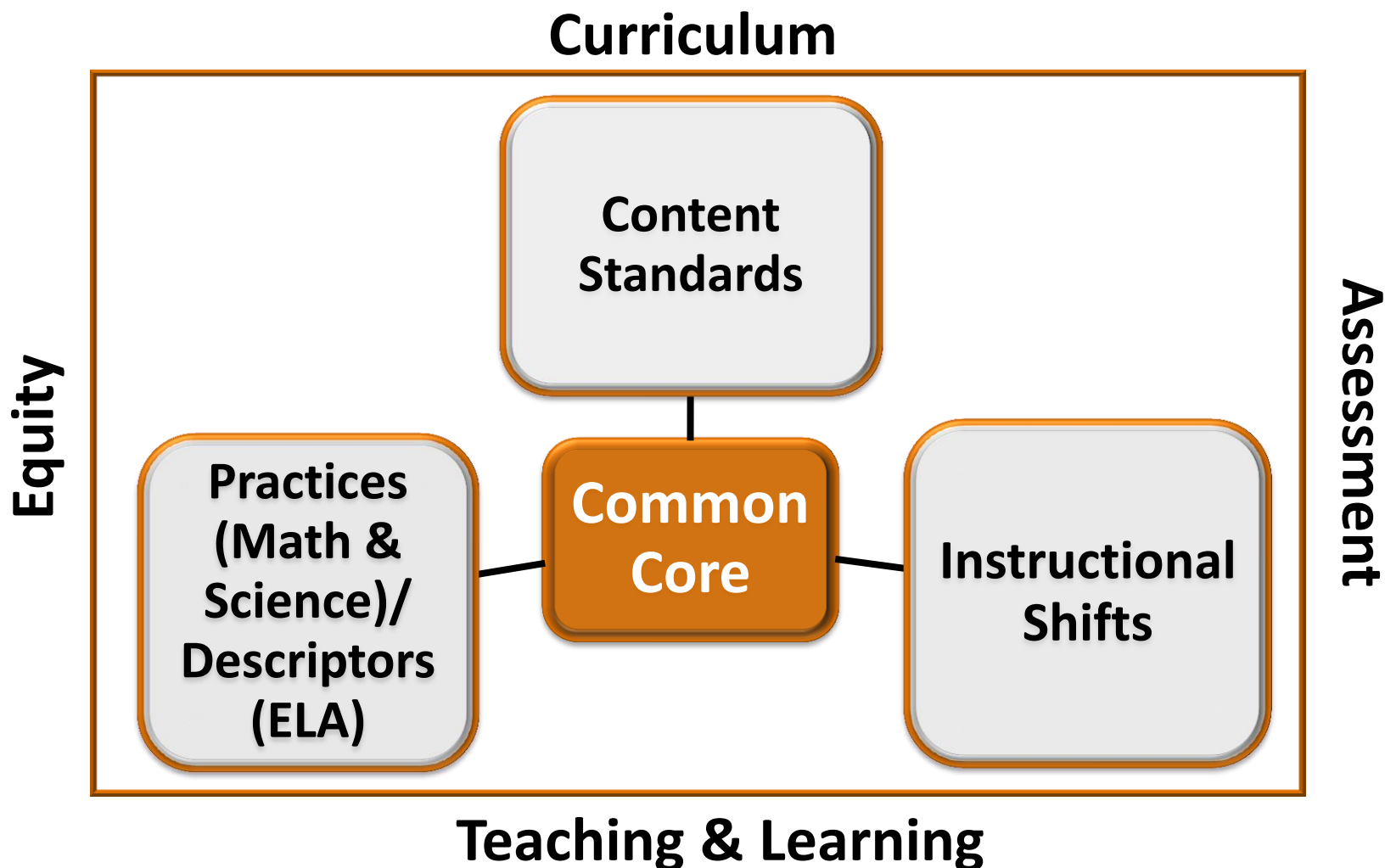
# Marshmallow Challenge Debrief

- What are the **challenges** the task presented?
- What **benefits** did you see with doing this type of collaborative activity?





# Common Core Standards





# Standards for Mathematical Practice

- 1. Make sense of problems and persevere in solving them.**
- 2. Reason abstractly and quantitatively.**
- 3. Construct viable arguments and critique the reasoning of others.**
- 4. Model with mathematics.**
5. Use appropriate tools strategically.
- 6. Attend to precision.**
- 7. Look for and make use of structure.**
8. Look for and express regularity in repeated reasoning.



# Standards for Mathematical Practice

## Read SMP 1 from the CCSS, p.1

As you read, consider “The Marshmallow Challenge” and students in your classroom.

## Choose 1 way to show your understanding of SMP 1:

- Visual representation
- Written example
- Extract key words
- Summary



# Standards for Mathematical Practice

## Read SMP 4 from the CCSS, p.2

As you read, consider “The Marshmallow Challenge” and students in your classroom.

## Choose a different way to show your understanding of SMP 4:

- Visual representation
- Written example
- Extract key words
- Summary



# Standards for Mathematical Practice

## Read SMP 6 from the CCSS, p.3

As you read, consider “The Marshmallow Challenge” and students in your classroom.

## Choose a third way to show your understanding of SMP 6:

- Visual representation
- Written example
- Extract key words
- Summary



# Gallery Walk

- Pick 2 or 3 representations for each SMP you have done from your group and tape them on the posters.
- While walking around, look for something that is different from your own thinking.



# Break

# 10 Minutes





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# Marshmallow Challenge Video





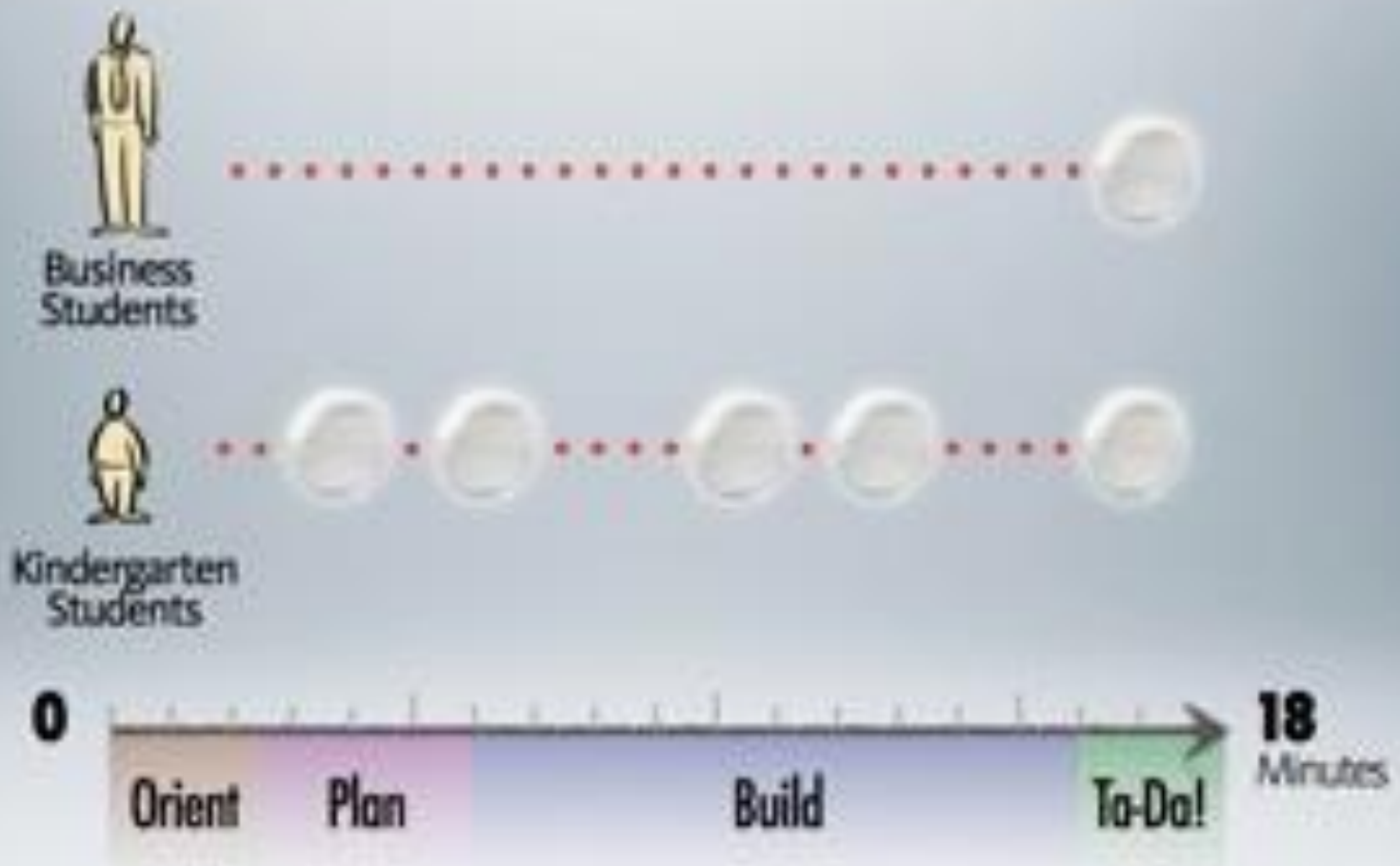


# Marshmallow Challenge Debrief





# Marshmallow Challenge Debrief





# Math Practices in Action

## Number Line Puzzler

- On your own, determine the value of the missing number on each number line.
- Share your thinking with your partner.
- With your partner, determine which number lines you found the *least challenging* and the *most challenging*. What commonalities did they have?
- Share your findings with your table.



# Math Practices in Action Debrief

When you were working through the “Number Line Puzzler,” how did you

- *make sense of the problem and persevere in solving it?*
- *model with mathematics?*
- *attend to precision* while communicating to your partner?



# Eliciting the SMPs

- Think about the students in your classroom.
- Think of the concepts that are the *most challenging* for them.
- What questions could you ask to get students to show their understanding in:
  - Making sense and persevering
  - Modeling with mathematics
  - Attending to precision



# Lunch

# 1 Hour



# Standards Interpretation

## Math Content Standards Format

- **Domains** are larger groups of related standards. Standards from different domains may sometimes be closely related.
- **Clusters** are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.
- **Standards** define what students should understand and be able to do.



# Format Example

**Number and Operations in Base Ten**

**3.NBT**

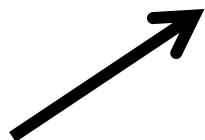
**Domain**



**Use place value understanding and properties of operations to perform multi-digit arithmetic.**

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g.,  $9 \times 80$ ,  $5 \times 60$ ) using strategies based on place value and properties of operations.

**Cluster**



**Standard**





# Standards Interpretation

## Read the **Kindergarten** Common Core State Standard (CCSS)

- **Domain:** Number and Operations in Base Ten (NBT), p. 9



Grade K

### Number and Operations in Base Ten

K.NBT

**Work with numbers 11–19 to gain foundations for place value.**

1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g.,  $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.



# Expected Student Evidence

What kind of student evidence do you expect to see from students that demonstrate their understanding of numbers?



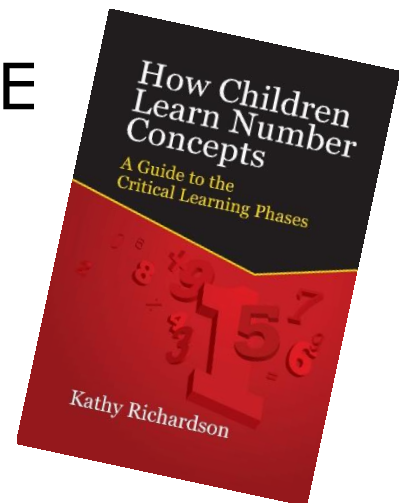
# Text-Based Discussion

## *How Children Learn Number Concepts* -Kathy Richardson

- Chapter 4: Understanding Place Value: *Tens and Ones*

### **JIGSAW pages 75-90**

- In your group, letter-off from A - E
- Read your section quietly.
- Share one interesting idea from your section with your group.



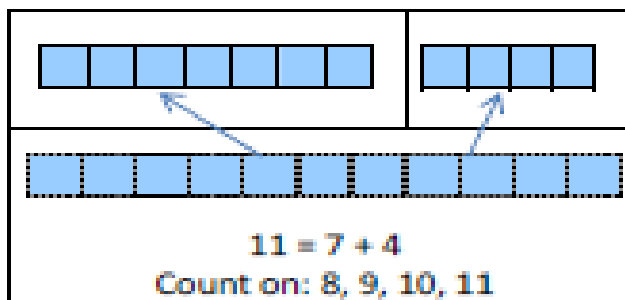
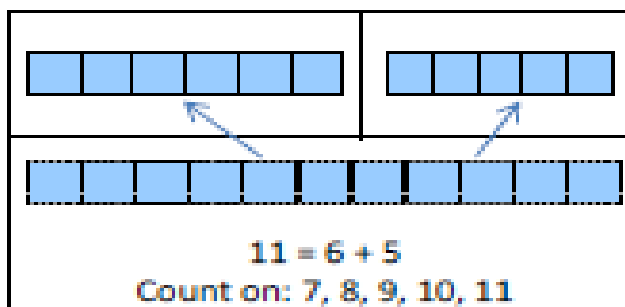
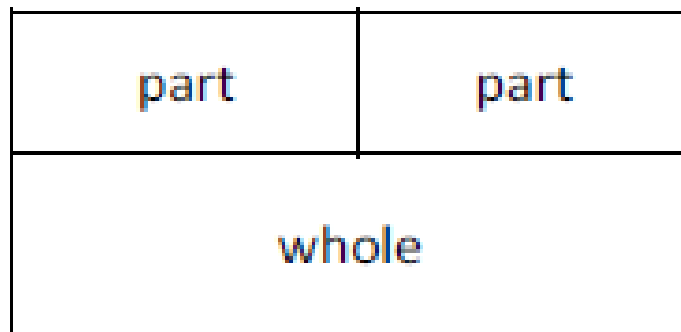


# Trying on the Work

## Kindergarten Number and Operations in Base Ten: Composing and Decomposing Numbers

### Kindergarten

Use concrete objects and drawings to compose and decompose numbers from 11 – 19.

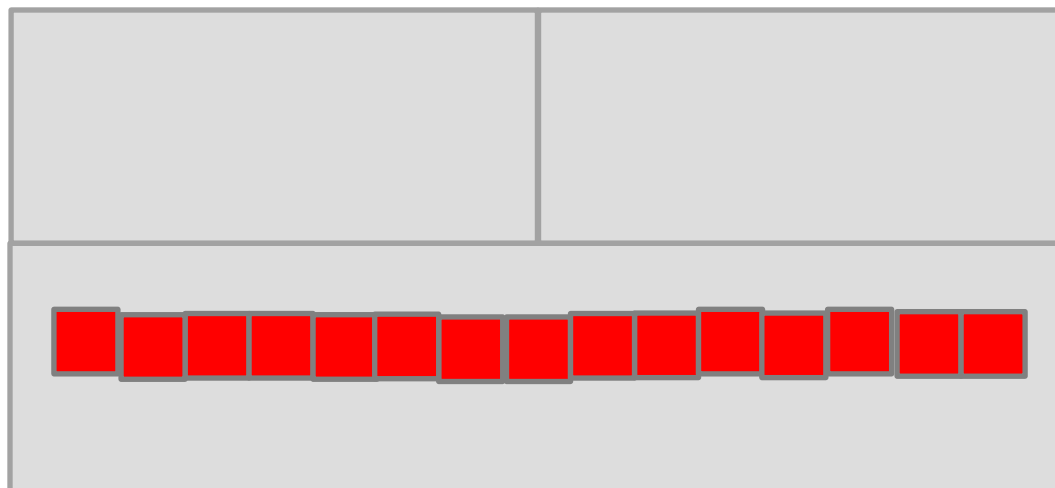


Here are two ways to decompose the number eleven.



# Trying on the Work

On, your “white board,” find as many ways you can *break* the number 15 into two parts.



Equation:  $15 = \underline{\hspace{2cm}}$

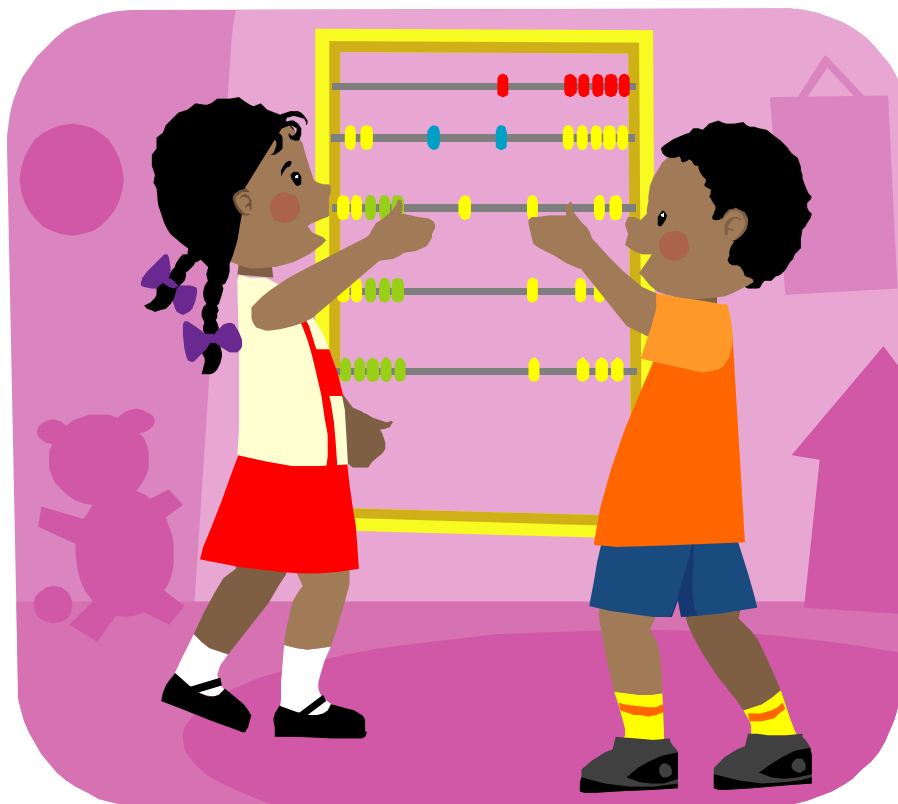


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# Demo Lesson

*Building and Taking Apart Numbers*





# Demo Lesson Debrief

Take a minute to reflect on the demo lesson.

Where did you notice the Standards for Mathematical Practice (1, 4, and 6) being attended to during the lesson?



# Reflection

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

- What have you learned that is new today?
- What do you hope to get out of this week?





**Have a great afternoon!**

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