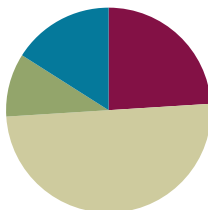


Lesson 4

Objective: Represent decomposition story situations with drawings using numeric number bonds.

Suggested Lesson Structure

| | |
|-----------------------|---------------------|
| ■ Fluency Practice | (12 minutes) |
| ■ Application Problem | (5 minutes) |
| ■ Concept Development | (25 minutes) |
| ■ Student Debrief | (8 minutes) |
| Total Time | (50 minutes) |



Fluency Practice (12 minutes)

- Comparing Towers **K.MD.2** (5 minutes)
- Show Me Part or Whole **K.OA.1** (3 minutes)
- Draw Lines to Make a Bond of 4 **K.OA.1** (4 minutes)

Comparing Towers (5 minutes)

Materials: (S) Dice and 12 linking cubes per pair

Note: This fluency activity again relates length with number. It also encourages students to explore how many more cubes are needed to make the towers the same length and number.

Each partner rolls a die and creates a tower using the number shown on the die. Students compare towers and make a *less than*, *more than*, or *same as* statement. Then, students must add cubes to the shorter tower so it is the same height as the longer tower. Consider providing cubes of different colors so students can easily count how many more cubes they added to make the towers the same length.

Show Me Part or Whole (3 minutes)

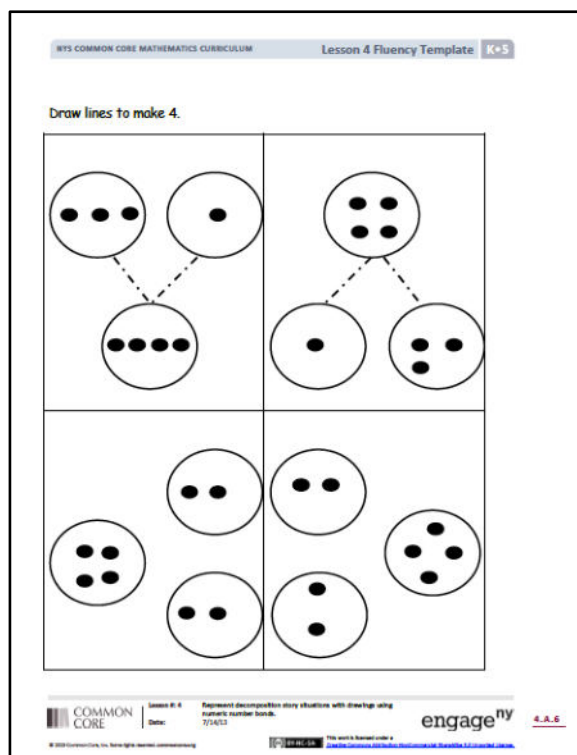
Materials: (T) Familiar objects that exemplify the part-whole relationship such as a whole apple and an apple slice or a whole banana and a banana peel

Note: This activity prepares students for today's lesson by linking mathematical vocabulary to kinesthetic movement and associating part-whole relationships with familiar objects.

T: Show me the sign for *whole*. (Model two hands clasped together.)

S: (Hold two hands clasped together.)

- T: Let's use our math muscles and take it apart (exaggerate with facial expression as if straining to pull the two hands apart).
- S: (Pull two hands apart.)
- T: Show me whole.
- S: (Hold two hands clasped together.)
- T: Show me parts.
- S: (Pull two hands apart.)
- T: Whole, part, whole, part, part, part, whole, whole, part...
- S: (Show hand gestures as indicated.)
- T: Now, I'll show you some objects, and I want you to decide if it's the whole thing (reinforce with hand gestures) or just part of something (emphasize with gesture). (Hold up an apple slice.) Is this the whole apple or part of the apple? Think. (Pause.) Now, show me.
- S: (Hold hands apart, as before.)
- T: Now, tell me. Is it whole (gesture) or part (gesture)?
- S: Part!
- T: Very good. Look at what I have now. (Show a whole apple.) Whole or part? Think. (Pause.) Now, show me.
- S: (Clasp hands together to indicate *whole*.)
- T: Raise your hand when you know the math word. (Wait for all hands to go up, and then signal.)
- S: Whole!



Repeat with a few more objects, being careful to avoid a predictable pattern. Increase the pace, and reduce scaffolding as students demonstrate mastery.

Draw Lines to Make a Bond of 4 (4 minutes)

Materials: (S) 4 beans, make a bond of 4 (Fluency Template) inserted into personal white board

Note: This fluency activity reinforces the part–total relationship represented by the number bond. It helps students understand that the lines of the number bond connect the two parts with the total and that the orientation of the parts and total do not affect the numerical relationship.

Conduct the activity as outlined in Lesson 2. As a variation, have students write the numerals into the parts and wholes (on top of the dots) and then state the decomposition (e.g., 4 is 2 and 2).

Application Problem (5 minutes)

Materials: (S) Small piece of clay, paper, pencil

Anthony had 5 bananas. Make the 5 bananas with your clay.

He wanted to share the bananas with one of his friends.

Draw two plates on your paper. Put the bananas on the plates to show one way he could share the bananas with his friend.

Draw a number bond to show how he shared his 5 bananas.

Turn and talk with your partner. Did she do it the same way?

How many different ways can you find to share the bananas?

What if there were only 4 bananas?

Note: The Application Problem encourages students to explore different configurations of 5 in preparation for today's lesson on decomposition.

Concept Development (25 minutes)

Materials: (S) Number bond (Lesson 1 Template 2), two linking cube 5-sticks (all of the same color), personal white board

Ensure that the student templates are oriented with the whole on the top and the parts on the bottom.

MP.2

- T: Let's pretend today! Pretend that you have 5 apples. Show me with your cubes how the group of 5 apples would look on your mat.
- T: I'm going to draw the linking cubes into this number bond on the board, just like you put them in your whole.
- T: Now, pretend that 3 of your apples are red and 2 are green. Show with your other set of cubes how that would look on your mat.
- T: Good! I'll draw those cubes in the number bond, too. Look carefully at your groups of cubes. Let's show how they would look in the number bond if we used numbers instead. Take your cubes off, and write the numbers with your marker as we have done before. Who would like to tell me how to fill in our numbers?
- S: The 5 is in this circle, in the whole. → I put the 2 in this part and the 3 in the other part.



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Chunk the Application Problem into small pieces for students with disabilities. Give a direction, and then watch as students carry it out before moving on with the next one. For example, "Make 5 bananas with your clay. (Pause.) Draw two plates on your paper. (Pause.) Put the bananas on the plates to show one way to share the bananas."



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Often students have a firm foundation in part-whole relationships but struggle with placing the objects or numbers in the correct places on the number bond model. Provide them with a template without the arms, and allow them to draw the lines themselves. Allowing students to decide on the orientation of the number bond often reduces errors.



A NOTE ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Using cubes of one color to represent the apples pushes students to think abstractly about the problem. If it is necessary to start with different color cubes to support students who are struggling with decomposition, do so, but repeat the problem with cubes of one color to help students move toward more abstract thinking.

- T: Great job! You separated the 5 cubes as a set of 2 cubes and a set of 3 cubes. 5 is the same as 2 and 3 together. Did anyone do it a different way? (Allow time for discussion.)
- T: Put your cubes away. Let's make a different number bond. This time, I want to pretend I have 4 balls. 1 is blue, and 3 are orange. How could I show this in my number bond picture? (Allow students to guide you in creating the pictorial number bond.) Make this number bond picture on your mat, too.
- T: Now, erase the pictures in your number bond, and write the numbers instead. Did we change our story?
- S: No! We just wrote it in a different way.
- T: Let's make another story about 3 things. Let's draw 3 circles for 3 things in the place for our whole. Does anyone have an idea for a story that could give us the parts of a number bond for this 3?
- S: I have 3 toy cars. 1 is red, and 2 are blue.
- T: Hmm... 1 red car and 2 blue cars. How would I show that in the number bond? (Allow time for discussion and creation of the new pictorial number bond.) Now, show me how it would look with numbers instead. Hold up your board!



A NOTE ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Encourage English language learners to reach for experiences from their culture to tell a story about their number bonds. Use students' prior knowledge to encourage them to participate in class and use the language they are learning.

Repeat the exercise several times with wholes of 3, 4, and 5. This time, encourage students to use only numbers in the bonds.

Sample further decomposition stories:

- 4 rabbits were hopping through the forest. When they heard a noise, 1 went under a tree, and 3 found a little cave to hide in.
- Marta's father bought 5 bananas. 2 were eaten on Monday, and 3 were eaten on Tuesday.
- Mama robin had 3 eggs. 2 eggs hatched in the morning. 1 egg hatched in the afternoon.

T: Let's do some more of this in our Problem Sets.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 4 Problem Set K•4

Name: Teega Date: 1-31-18

Draw and write the numbers to complete the number bonds.

COMMON CORE Lesson 4: Represent decomposition story situations with drawings using numeric number bonds. engage^{ny} 4.A.7

Student Debrief (8 minutes)

Lesson Objective: Represent decomposition story situations with drawings using numeric number bonds.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. Any combination of the questions below may be used to lead the discussion.

- Share with your neighbor the number bond you drew on your Problem Set. How are they the same? How are they different?
- Yesterday, we started with the parts and found the whole. When we started with the parts, could we figure out what the whole had to be?
- Today, we started with the whole and found the parts. When we start with the whole, can we figure out what the parts have to be, or do we need to be told more of the story? If we just know the whole, can we still figure out what the parts in our story *might* be?
- When we start with the whole, it makes sense to me to put the whole on top so it's as if the parts are falling down. When we start with the parts, I like to put them on top. Then, it's as if they are falling down and landing in the same spot. It doesn't have to be like that, but do you understand my thinking? Can you explain my thinking to your partner? (It is also valid to think of the story progressing from left to right. Explaining this orientation supports the pattern of reading text from left to right.)
- When you drew your bananas in the number bond, did your number bond look exactly like your partner's? How were they different? (Focus in on orientation of the number bond.) Does it really matter where we put the parts and the whole?
- How do we know where to write each number in a number bond?

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 4 Problem Set K•4

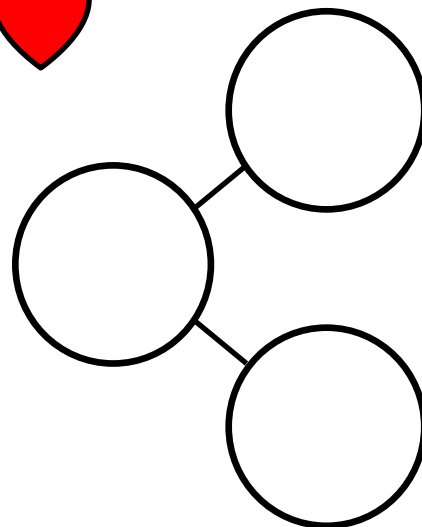
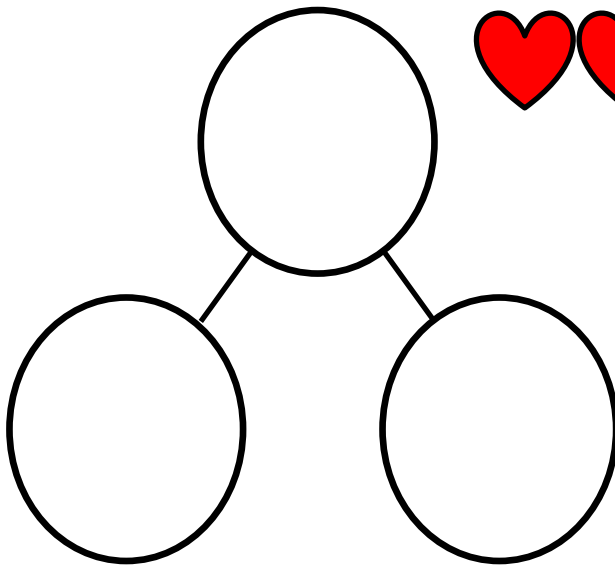
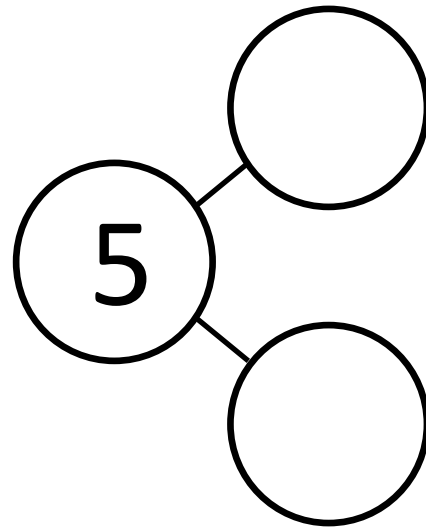
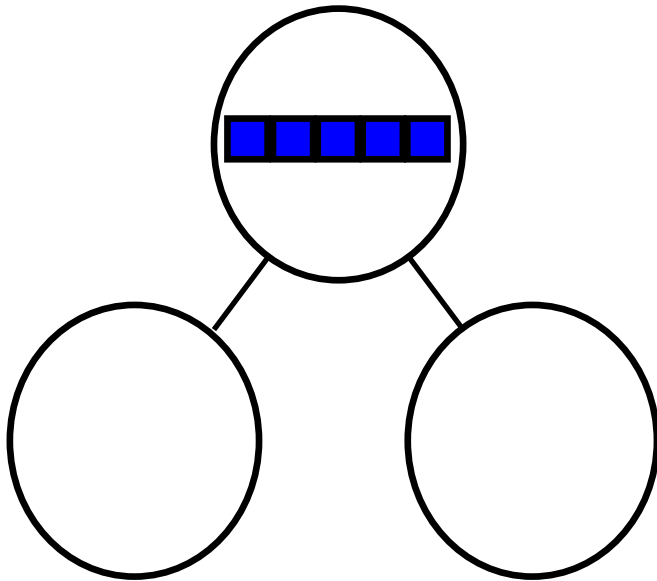
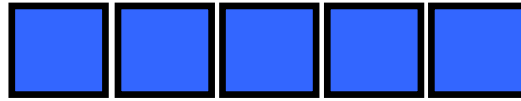
Look at the picture. Tell a story about the dogs moving and sitting to your neighbor. Draw a number bond and write numbers that match your story.

COMMON CORE Lesson 4: Represent decomposition story situations with drawings using numeric number bonds. 10/1/13 engage^{ny} 4.A.8

Name _____

Date _____

Draw and write the numbers to complete the number bonds.




Look at the picture. Tell your neighbor a story about the dogs standing and sitting. Draw a number bond, and write numbers that match your story.

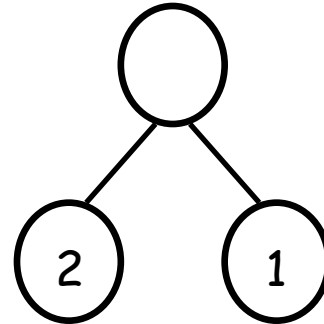



Name _____

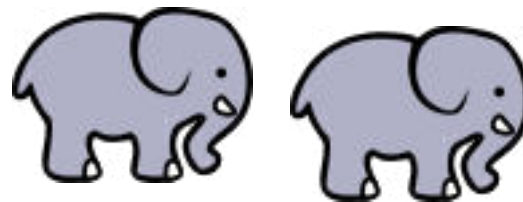
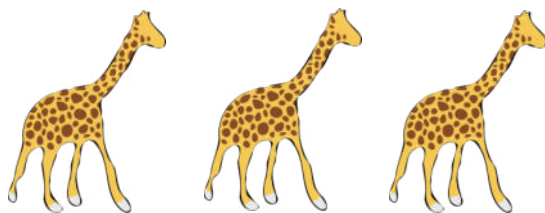
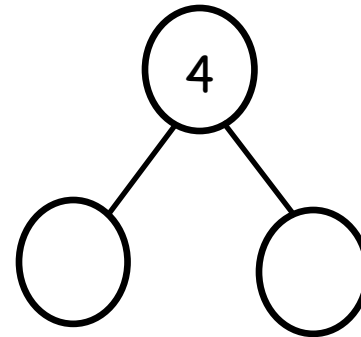
Date _____

Finish the number bonds. Finish the sentence.


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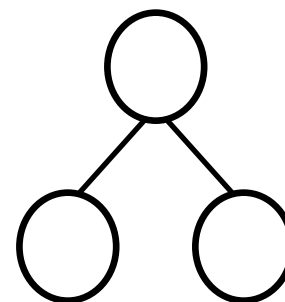



 is and



Tell an adult a story about the animals, and then make a number sentence and number bond about it.

is and



Draw lines to make a bond of 4.

| | |
|--|--|
| | |
| | |

make a bond of 4