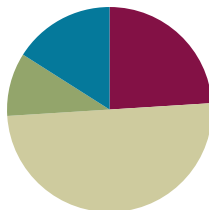


Lesson 18

Objective: Solve *both addends unknown* word problems to 8 to find addition patterns in number pairs.

Suggested Lesson Structure

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



A NOTE ON CLASSROOM ORGANIZATION FOR LESSONS 16, 17, AND 18:

Because Lessons 16, 17, and 18 involve word problems that must be read aloud to the majority of kindergarten students, it is suggested that additional adult support be sought for these instructional days. (See the more extensive note in Lesson 16.)

Fluency Practice (12 minutes)

- Sprint: Make 5 **K.OA.5** (12 minutes)

Sprint: Make 5 (12 minutes)

Materials: (S) Make 5 Sprint (2 copies)

Note: This Sprint extends the work that students did in Topic A with pictures to include numerals. Students are moving toward a more abstract understanding of the relationships between numbers to 5, though they may continue to rely on the support of pictures and objects throughout kindergarten.

- T: It's time for a Sprint! (Briefly recall previous Sprint preparation activities, and distribute Sprints facedown.) Take out your pencil and one crayon, any color. For this Sprint, you are going to circle the number that makes 5. (Demonstrate the first problem as needed.)

Continue to follow the Sprint procedure as outlined in Lesson 3. Have students work on the Sprint for a second time (they soon work on two different Sprints in a single day). Continue to emphasize that the goal is simply to do better than the first time and celebrate improvement.



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Because the Application Problem depends heavily on English language learners being able to understand that apples and oranges are fruits, use visuals of apples and oranges to count pieces of fruit: "Let's see how many pieces of fruit we have. Count with me: 1 apple, 2 apples, 1 orange, 2 oranges, etc. How many pieces of fruit did we count in all?"

Application Problem (5 minutes)

Materials: (S) Personal white board

Sam bought 8 pieces of fruit at the farmers' market. He loves apples and oranges, so he bought some of each.

Draw a plate, and show his fruit on the plate. Don't lose any!

Show your work to your friend. Does her plate look the same? Can you make a number bond and number sentence about your picture?

Note: This story introduces the thinking for the *put together with both addends unknown* problem structure in today's lesson.

Concept Development (25 minutes)

Materials: (T) Large foam die or substitute (S) Personal white board, dry erase markers in black, red, and green (if not available, use paper and crayons), train (Lesson 14 Template) (with train image cut)

T: Listen to my silly story: The students were playing with 7 balls on the playground. They accidentally kicked some of the balls into a big puddle, and now, some are muddy! What is one way the balls might look now? Turn and talk to your partner about your ideas. (Allow time for discussion.)

T: Let's make a math problem about my silly story. Draw 7 balls on your personal white board. (Demonstrate drawing empty circles.) Make some muddy. (Do not draw mud on any of the circles. Let students develop partners of their own.) Student A, show us your drawing. How many of your balls got muddy?

S: 3.

T: (Fill in 3 circles on the drawing.) Could we make a number sentence for Student A's picture?

T: How many balls in all?

S: 7.

T: How many were muddy?

S: 3.

T: How many were clean?

S: 4.

T: Read the number sentence with me: $7 = 3 + 4$. Write the number sentence on your board, too! (Circulate to ensure understanding.)

T: Did anyone have a different picture of the balls?

S: I do! I drew 6 muddy balls and 1 clean ball. → I have 2 muddy balls. (Other varied answers.)

T: Go ahead and write a number sentence to match your picture. Start with the 7. (Circulate to ensure understanding.) If you finish early, figure out another way the balls might have looked, and write another number sentence to match that.

$$7 = 3 + 4$$

$$7 = 5 + 2$$

$$7 = 6 + 1$$

$$7 = 2 + 5$$

$$7 = 1 + 6$$

$$7 = 4 + 3$$

After students have worked, quickly represent all the combinations. Write each one on a separate paper to sequence in the Student Debrief.

MP.1

- T: Erase your board, and listen to my next little story. Close your eyes while you listen and think, and then, I will have you draw your picture on your board.
- T: Cora went to a birthday party. At the party, she saw a dish of 8 jelly beans. Some were red, and some were green. Open your eyes, and draw a picture of the jelly beans. (Allow time for drawing.) Who would like to share his picture with the class first? Go ahead, Student A.
- S: I drew 1 red jelly bean and 7 green ones.
- T: Let's use your idea to write our number sentence. How would I complete the first one? How many jelly beans did Cora have in all?
- S: 8.
- T: (Fill in the equation on the train template). How many were red? (1.) How many were green? (7.) Read with me: $8 = 1 + 7$.
- T: What if I put the number of green jelly beans first instead, like this: $7 + 1 = 8$ (demonstrate). Would that be fair?
- S: Yes! It doesn't matter which color you put first. → There are still the same number of jelly beans in the dish.
- T: Thank you for sharing your idea, Student A! Look carefully at your own pictures now, and see if you can make some number sentences that show your own idea. Turn and talk to your partner about your work when you are done. Do your jelly beans look the same? (Allow time for sharing and discussion.)
- T: Who would like to share another picture and idea with the class? If your picture was different, could it still be true? (Allow time for sharing and discussion.)

$$7 = 1 + 6$$

$$7 = 2 + 5$$

$$7 = 3 + 4$$

$$7 = 4 + 3$$

$$7 = 5 + 2$$

$$7 = 6 + 1$$



NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

For students working below grade level, repeat the lesson with numbers to 5. Watch students as they are asked to solve a *put together with both addends unknown* problem, and guide them through it step by step: "5 red and green crayons are on the desk. Draw and color crayons using green and red markers. Now, let's fill in the number sentence."

Problem Set (10 minutes)

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

Please see the note at the beginning of this lesson. The adults should read each problem aloud to their group and watch to ensure understanding during the completion of the exercise.

Note: Allow students to use concrete objects if needed.

Student Debrief (8 minutes)

Lesson Objective: Solve *both addends unknown* word problems to 8 to find addition patterns in number pairs.

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.

- Talk about the pencils on your Problem Set. Did you and your neighbor put the same amount in the desk and the pencil box?
- How did the cubes help you to think about Shania's necklaces?
- What was the difference between the two types of number sentences we made for each picture on the board?
- When we were drawing our jelly bean number sentences, did it matter which color we wrote about first?
- Could different pictures about the 8 jelly beans still be true? Why?
- Let's put our muddy ball number sentences and pictures in order. I'll put this one first: $7 = 1 + 6$. Next comes $7 = 2 + 5$ (move the cards). Talk to your partner. Which number sentence will come next in our pattern?
- Talk to your partner. What patterns do you notice?
- What was the same about all of our problems today? (There was more than one way to solve and write the problems.)

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 18 Problem Set K•4


Name Brandon Date 2-21-13

Devin has 6 Spiderman pencils. He put some in his desk and the rest in his pencil box. Write a number sentence to show how many pencils Devin might have in his desk and pencil box.



$$6 = 4 + 2$$

Shania made 7 necklaces. She wore some of the necklaces and put the rest in her jewelry box. Use the linking cubes to help you think about how many necklaces Shania might have on and how many are in her jewelry box. Then, complete the number sentences.




$$3 + 4 = 7$$

$$7 = 4 + 3$$

COMMON CORE Lesson 18: Solve both addends unknown word problems to 8 to find addition patterns in number pairs. 8/29/13 engage^{ny} 4.C.6

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 18 Problem Set K•4


Tommy planted 8 flowers. He planted some in his garden and some in flowerpots. Draw how Tommy may have planted the flowers. Fill in the number sentences to match your picture.



$$8 = 4 + 4$$

$$4 + 4 = 8$$

Create your own story and draw a picture. Fill in the number sentences. Tell your story to a friend.

























$$3 + 2 = 5$$

$$5 = 2 + 3$$

COMMON CORE Lesson 18: Solve both addends unknown word problems to 8 to find addition patterns in number pairs. 8/29/13 engage^{ny} 4.C.7

Circle the number to make 5.

1				
2	* * * *	* * *	*	
3				
4	4	1	4	
5				
6	* * *	* *	* * * *	*
7				
8	3	3	1	2
9				
10	* *	* * * *	* * *	* *
11	2	2	3	1
12	*	* * * * *	* * *	* * * *
13	1	4	5	3
14				
15	5	2	1	0

Name _____

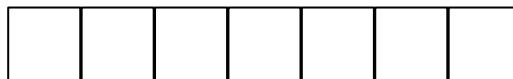
Date _____

Devin has 6 Spiderman pencils. He put some in his desk and the rest in his pencil box. Write a number sentence to show how many pencils Devin might have in his desk and pencil box.



$$6 = \square + \square$$

Shania made 7 necklaces. She wore some of the necklaces and put the rest in her jewelry box. Use the linking cubes to help you think about how many necklaces Shania might have on and how many are in her jewelry box. Then, complete the number sentences.



$$\square + \square = \square$$

$$\square = \square + \square$$

Tommy planted 8 flowers. He planted some in his garden and some in flowerpots. Draw how Tommy may have planted the flowers. Fill in the number sentences to match your picture.

$$\square = \square + \square$$

$$\square + \square = \square$$

Create your own story, and draw a picture. Fill in the number sentences. Tell your story to a friend.

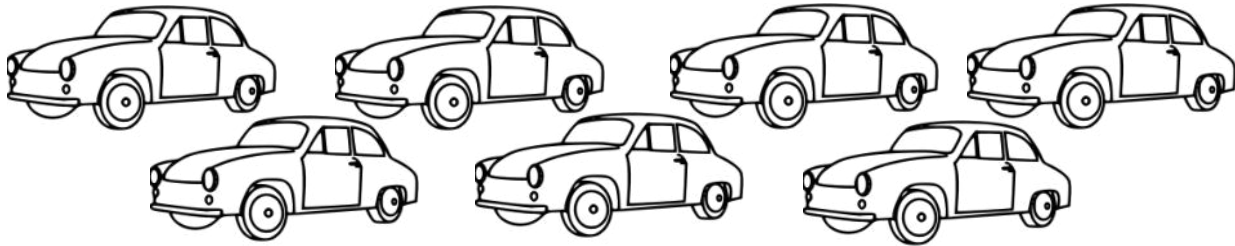
$$\square + \square = \square$$

$$\square = \square + \square$$

Name _____

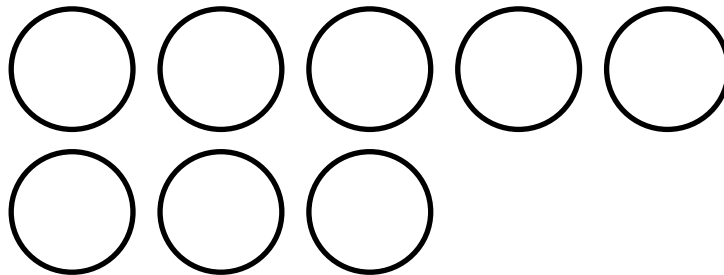
Date _____

Ted has 7 toy cars. Color some cars red and the rest blue. Write a number sentence that shows how many are red and how many are blue.



$$7 = \square + \square$$
$$\square + \square = \square$$

Chuck has 8 balls. Some are red, and the rest are blue. Color to show Chuck's balls. Fill in the number sentences.



$$\square + \square = \square$$
$$\square = \square + \square$$