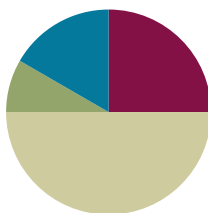


## Lesson 24

**Objective:** Strategize to solve *take from with change unknown* problems.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Count by Fives **1.OA.5** (5 minutes)
- Sprint: Missing Subtrahends Within 10 **1.OA.6** (10 minutes)

### Count by Fives (5 minutes)

Materials: (T) Rekenrek

Note: Counting by fives promotes fluency with adding and subtracting 5.

Use the Rekenrek to count by fives to 40 and back. Students say the numbers as you move the beads. First, have students count the Say Ten way. Then, do it again, but have students count the regular way.

### Sprint: Missing Subtrahends Within 10 (10 minutes)

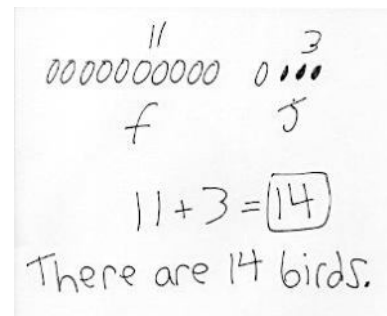
Materials: (S) Missing Subtrahends Within 10 Sprint

Note: This review activity is intended to strengthen students' ability to fluently add and subtract within 10 while preparing students for the problem types that are presented in today's lesson.

**Application Problem (5 minutes)**

Yesterday, I saw 11 birds on a branch. Three birds joined them on the branch. How many birds were on the branch then?

Note: This problem is intentionally an *add to with result unknown* problem. Having spent two days on *change* or *addend unknown* situation types, students may be identifying a pattern in solving the problem type presented.



Misconceptions may arise through this Application Problem if students are overgeneralizing. Students use the context of this problem to transition into today's lesson where they are working with *take from with change unknown* problems. While students are completing the Application Problem, circulate and select a student's work in which the drawings accurately represent the story situation and are simple, labeled, and aligned in a single row. Use this work as the sample for sharing during the lesson.

**Concept Development (30 minutes)**

Materials: (S) Personal white board, work from Application Problem

Students may sit with their partners in the meeting area or at their seats with their materials.

T: (Project today's Application Problem.) We have been using the RDW process to solve problems. Before we share our Application Problem with our partners, what does RDW stand for again?

S: Read, draw, and write.

T: With your partner, share your solution, or answer. Be sure to discuss your drawings as you explain your idea. If you realize you forgot something or have to change something, you may do so.

T: (Project or redraw chosen student work.) This student's work uses simple shapes drawn in an organized line, which helps me see what we have. (See Application Problem image as an example.)

T: I need one volunteer to read the problem again for us and another volunteer to explain how the picture shows each part. (Choose students other than the one whose solution is being shared.)

S1: Yesterday, I saw birds in a tree.

S2: Here are the birds. (Points to the full line of shapes.)

S1: There were 11 birds on a branch, and then 3 birds joined them.

S2: These 11 birds are the ones on the branch first. I think that's why she wrote *f* under it. (Points to the first 11 birds.) Here are the 3 birds that joined in. That's why she wrote *j* under it. (Points to 3 birds at the end.)

S1: How many birds were in the tree?

S2: There are 14 birds. She wrote  $11 + 3 = 14$ , and "You saw 14 birds," because that matches the story and the question. There were 11. Then 3 joined in, and now there are 14. (Points to the number sentence while explaining.)

T: You all did a great job reading, drawing, and writing to solve this problem. Let's try another problem.

- T: (Project the following problem.) Today, I was passing the same tree. There were 11 birds in the tree when I first looked at it. I looked away. When I looked back, there were 5 birds. How many birds flew away?
- S: (Begin to solve the problem.)
- T: (Reread the question two more times to support struggling readers as students work.)
- T: (Remind students to think about these questions: *Can you draw something? What can you draw? What does your drawing show you?* Give students approximately three minutes to RDW. Invite two or more students to solve on the board or on chart paper in pairs.)
- T: (Project student work.) Let's look at the work these students did. They drew to show the 11 birds in the tree. Oh, and look at this. They drew a circle around 5 birds and wrote an *s* to show that these 5 birds that stayed were a part of all 11 birds that were in the tree. Let's draw another circle around these birds, the ones labeled *f*. These are the birds that flew away. (If neither group has a circle around them, draw a circle around each group.)
- T: I'm going to use our lines from our number bonds to show that these two parts together make the total of 11 birds.
- T:  $11 - 6 = 5$ . How many birds flew away? Let's put a rectangle around the solution.
- S: Six birds flew away.
- T: What strategies could you use to solve this?
- S: I knew there were two parts, so I took away the 5 to find the other part. → I looked at the picture and counted them all. → I drew 11 in 5-group rows. It made it really easy to see 5 and then to see the other part. → I thought of my doubles plus one fact.  $5 + 5$  is 10, so I needed  $5 + 6$  to make 11.



### NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Direct students to analyze the work their classmates have completed. As their teacher, you should also analyze their ability to solve the problem type presented. Look for common misconceptions and the way in which students explain how they got their answers to tell how students are progressing.

Repeat the process above for three more *take from with change unknown* story problems such as those listed below:

- Mina had 13 ants in her ant farm. Some ants escaped. Now, there are 9 ants in the ant farm. How many ants escaped?
- Jamal had 14 trains, but he only found 8 of his trains. How many of his trains are missing?
- June's baby brother hid some of her blocks. She has 7 blocks now. She used to have 15 blocks. How many blocks should June be looking for?

When sharing solutions and strategies, debrief quickly and move to the next problem. The goal is for students to love solving problems and to begin making connections between reading, drawing, and writing as a road to success as a problem solver!

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

## Student Debrief (10 minutes)

**Lesson Objective:** Strategize to solve *take from with change unknown* problems.

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.

- Look at Problems 1 and 2. How are your drawings similar? How are they different?
- How was your drawing similar to or different from your partner's drawing?
- What did today's problems have in common? How were they the same or different from yesterday's problems? What was unknown in the problem, a part or the total? Which strategies were easier for you to use when a part is missing instead of the total? (Note: Students might find Problem 2 tricky since the first number given is the part that is left and the whole is given later in the problem.)
- Which problem was tricky for you? What did you draw? How can we add to the drawing with more information from the problem? What does the drawing show you?
- How did your drawings help you with the problems? Use a specific problem to explain your thinking.

## Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 24 Problem Set 1•2

Name: Maria Date: \_\_\_\_\_

Read the word problem.  
Draw and label.  
Write a number sentence and a statement that match the story.

1. Jose sees 11 frogs on the shore. Some of the frogs hop into the water. Now there are 8 frogs on the shore. How many frogs hopped into the water?

$11 - 3 = 8$   
3 frogs hopped into the water.

2. Cameron gives some of his apples to his sister. He still has 9 apples left. If he had 15 apples at first, how many apples did he give to his sister?

$15 - 6 = 9$   
Cameron gave 6 to his sister.

COMMON CORE Lesson 24: Strategize to solve take from with change unknown problems. 4/20/14 engage<sup>ny</sup> 2.C.34

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 24 Problem Set 1•2

3. Molly had 16 books. She loaned some to Gia. How many books did Gia borrow if Molly has 8 books left?

$16 - 8 = 8$   
Molly gave Gia 8 books.

4. 18 baby goats were playing outside. Some went into the barn. 9 stayed outside to play. How many baby goats went inside?

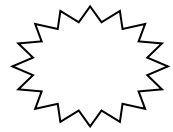
$18 - 9 = 9$   
9 baby goats went inside.

Meet with a partner and share your drawings and sentences. Talk with your partner about how your drawing tells the story.

COMMON CORE Lesson 24: Strategize to solve take from with change unknown problems. 4/20/14 engage<sup>ny</sup> 2.C.35

A

Number Correct:



Name \_\_\_\_\_

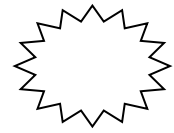
Date \_\_\_\_\_

\*Write the missing number.

1.	$2 - \square = 1$		16.	$6 - \square = 2$	
2.	$2 - \square = 2$		17.	$6 - \square = 3$	
3.	$2 - \square = 0$		18.	$6 - \square = 4$	
4.	$3 - \square = 2$		19.	$7 - \square = 3$	
5.	$3 - \square = 1$		20.	$7 - \square = 2$	
6.	$3 - \square = 0$		21.	$7 - \square = 1$	
7.	$3 - \square = 3$		22.	$8 - \square = 2$	
8.	$4 - \square = 4$		23.	$8 - \square = 3$	
9.	$4 - \square = 3$		24.	$4 = 8 - \square$	
10.	$4 - \square = 2$		25.	$2 = 9 - \square$	
11.	$4 - \square = 1$		26.	$3 = 9 - \square$	
12.	$5 - \square = 0$		27.	$4 = 9 - \square$	
13.	$5 - \square = 1$		28.	$10 - 3 = 9 - \square$	
14.	$5 - \square = 2$		29.	$9 - \square = 10 - 5$	
15.	$5 - \square = 3$		30.	$9 - \square = 10 - 6$	

**B**

Number Correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

\*Write the missing number.

1.	$2 - \square = 2$		16.	$6 - \square = 3$	
2.	$2 - \square = 1$		17.	$6 - \square = 4$	
3.	$2 - \square = 0$		18.	$6 - \square = 5$	
4.	$3 - \square = 3$		19.	$7 - \square = 4$	
5.	$3 - \square = 2$		20.	$7 - \square = 3$	
6.	$3 - \square = 1$		21.	$7 - \square = 2$	
7.	$3 - \square = 0$		22.	$8 - \square = 3$	
8.	$4 - \square = 4$		23.	$8 - \square = 4$	
9.	$4 - \square = 3$		24.	$5 = 8 - \square$	
10.	$4 - \square = 2$		25.	$3 = 9 - \square$	
11.	$4 - \square = 1$		26.	$4 = 9 - \square$	
12.	$5 - \square = 5$		27.	$5 = 9 - \square$	
13.	$5 - \square = 4$		28.	$10 - 4 = 9 - \square$	
14.	$5 - \square = 3$		29.	$9 - \square = 10 - 6$	
15.	$5 - \square = 2$		30.	$9 - \square = 10 - 5$	

Name \_\_\_\_\_

Date \_\_\_\_\_

Read the word problem.Draw and label.Write a number sentence and a statement that match the story.

1. Jose sees 11 frogs on the shore. Some of the frogs hop into the water. Now, there are 8 frogs on the shore. How many frogs hopped into the water?

- 
2. Cameron gives some of his apples to his sister. He still has 9 apples left. If he had 15 apples at first, how many apples did he give to his sister?

3. Molly had 16 books. She loaned some to Gia. How many books did Gia borrow if Molly has 8 books left?

- 
4. Eighteen baby goats were playing outside. Some went into the barn. Nine stayed outside to play. How many baby goats went inside?

Meet with a partner and share your drawings and sentences. Talk with your partner about how your drawing tells the story.



Name \_\_\_\_\_

Date \_\_\_\_\_

Read the word problem.Draw and label.Write a number sentence and a statement that matches the story.

There were 18 dogs splashing in a puddle. Some dogs left. There are 9 dogs still splashing in the puddle. How many dogs are left?

Name \_\_\_\_\_

Date \_\_\_\_\_

Read the word problem.Draw and label.Write a number sentence and a statement that matches the story.

1. Toby dropped 12 crayons on the classroom floor. Toby picked up 9 crayons. Marnie picked up the rest. How many crayons did Marnie pick up?

- 
2. There were 11 students on the playground. Some students went back into the classroom. If 7 students stayed outside, how many students went inside?

3. At the play, 8 students from Mr. Frank's room got a seat. If there were 17 children from Room 24, how many children did not get a seat?

- 
4. Simone had 12 bagels. She shared some with friends. Now, she has 9 bagels left. How many did she share with friends?