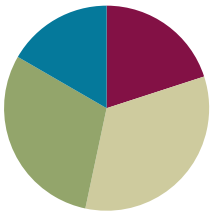
Lesson 3

Objective: Use math drawings to represent equal groups, and relate to repeated addition.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Concept Development	(20 minutes)
Application Problem	(18 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (12 minutes)

- Happy Counting by Fives **2.NBT.2** (3 minutes)
- Sprint: Subtraction Within 20 **2.OA.2** (9 minutes)

Happy Counting by Fives (3 minutes)

Note: This activity promotes the grade level fluency standard of skip-counting by 5s and anticipates telling time to the nearest five minutes in Module 7.

T: Let's count by fives, starting at 0. Ready? (Point up rhythmically until a change is desired. Close hand to indicate a stopping point. Point down to count in the opposite direction. Continue, periodically changing direction.)

S: 0, 5, 10, 15, 20 (switch) 15, 10 (switch) 15, 20, 25, 30, 35, 40 (switch) 35, 30, 25 (switch) 30, 35, 40, 45 (switch) 40, 35, 30 (switch) 35, 40, 45, 50 (switch) 45, 40, 35 (switch) 40, 45, 50 (switch) 45, 40, 35, 30, 25, 20, 15.

T: Excellent! Try it for 30 seconds with your partner, starting at 0. Partner A, you are the teacher today.

Sprint: Subtraction Within 20 (9 minutes)

Materials: (S) Subtraction Within 20 Sprint

Note: This fluency activity promotes mastery of subtracting from teen numbers to address the grade level fluency standard.

Concept Development (20 minutes)

Materials: (T) Counters (S) Personal white board

In this lesson, students continue working at the pictorial level, using math drawings to represent equal groups and relating those groups to repeated addition. They also use addition strategies, such as doubles, to add more efficiently.

T: (Display counters showing 4 groups of 4.) What repeated addition equation matches this model?

S: 4 + 4 + 4 + 4 = ____.

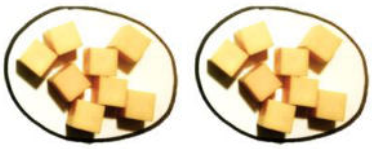
T: Yes! (Point to each 4.) To find the total, I can think 4 + 4 is 8, 8 + 4 is 12, and 12 + 4 is 16.

T: Can anyone think of a faster way to solve?

S: You can use doubles!

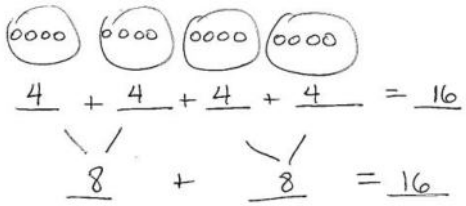
T: Can you explain what you mean?

S: I know 4 + 4 is 8, and there's another 4 + 4, which is 8. And 8 + 8 is 16.



T: (Move the counters to show how the pairs of 4 make 2 groups of 8.) You used a known doubles fact, 4 + 4, to be efficient.

T: Let me show what I just did in writing. (Draw the 4 groups of 4 on the board with a blank line beneath each group.) What repeated addition equation matches this picture? (Record as they speak.)



S: 4 + 4 + 4 + 4 = ____.

T: (Draw the number bond to show the bundling.)

T: Use the picture to talk with your partner about this question: How are 4 groups of 4 the same as 2 groups of 8?

S: If we draw a big circle around the first 2 groups of 4 and a big circle around the other 2 groups of 4, we'd have 2 groups of 8. → There are 2 fours inside of each 8. → Together, they equal 16.

T: Let's try another one. This time, let's draw it on our personal white boards. Draw a group of 5 circles. I like to circle mine so it's easy to see each group. (Model as students do the same.)

T: Now, show 5 more. (Model, and continue in this way until students have drawn 4 groups of 5.)

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

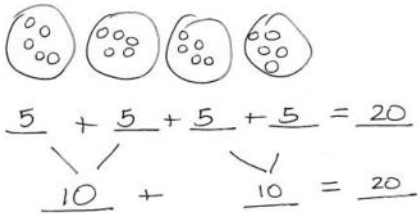
Use a Rekenrek as an alternative way to show repeated addition. Show the same number of beads along the left side, and then show the repeated addition equation that goes with the beads. For example, show 3 rows of 4 beads, and then write 4 + 4 + 4 = 12 to show the addition.

T: Tell your partner the repeated addition equation that matches your model, and then explain how they relate to each other.

S: 5 + 5 + 5 + 5 = ____. → The 5 stands for how many are in each group. → There are 4 groups of 5, so we add 4 fives.

T: Correct! Tell your partner two different ways you could add to find the total.

S: 5 + 5 = 10. 10 + 5 = 15. 15 + 5 = 20. → We can use doubles. 5 + 5 = 10 and 10 + 10 = 20. → We could skip-count: 5, 10, 15, 20.



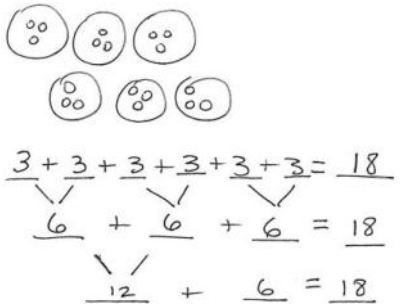
T: I like the way you made the connection between repeated addition and skip-counting!

T: Let's think about 4 groups of 5 and 2 groups of 10. How are they the same?

S: They both equal 20. → They're the same. You're just grouping the circles differently. → There are 2 fives in each group of 10.

T: That's a clever way to look at it!

T: Now, show me 6 groups of 3. (Model as students do the same.)



T: Let's write the repeated addition equation. Say it with me as you write. (Model as students do the same.)

S: 3 + 3 + 3 + 3 + 3 + 3 = ____.

T: How can we group the addends to find the total?

S: Use doubles! → 3 + 3 = 6.

T: Okay. So, let's add all our doubles. What is the new repeated addition equation?

MP.3

S: 6 + 6 + 6 = ____.

T: What doubles fact can we use now?

S: 6 + 6 = 12.

T: Yes! And 12 + 6 is…?

S: 18.

T: So, we can group addends into pairs and use doubles to add quickly. If there's an extra addend, we just add on that amount.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

At this point, some students may make the connection between repeated addition and multiplication. Praise their observation, but keep the focus on repeated addition for the lessons and assessments. Multiplication is taught in Grade 3.

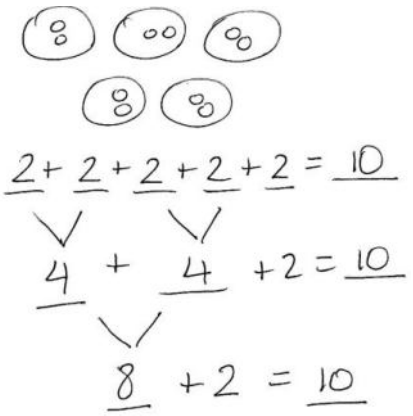
T: Let's do one more before you work on the Problem Set.

T: Draw 5 groups of 2 circles. (Model as students do the same.)

T: Write the repeated addition equation as I do the same. Say it with me as you write. (Model.)

S: 2 + 2 + 2 + 2 + 2 = ____.

T: Group the addends. 2 + 2 is…?
S: 4.
T: And 2 + 2 is…?
S: 4.
T: And we have 2 more. Now we have 4 + 4 + 2.
T: Can we group another pair of addends?
S: Yes! 4 + 4 = 8.
T: Plus 2 more?
S: 10.
T: Excellent work!

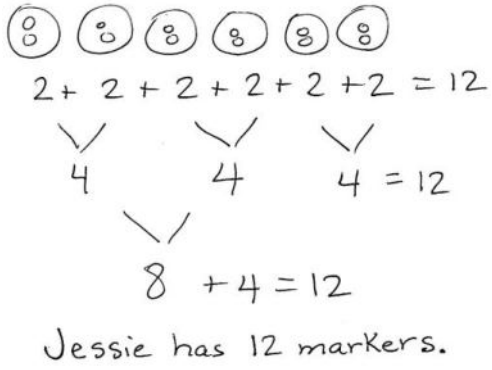


Application Problem (18 minutes)

Markers come in packs of 2. If Jessie has 6 packs of markers, how many markers does she have in all?

a. Draw groups to show Jessie's packs of markers.
b. Write a repeated addition equation to match your drawing.
c. Group addends into pairs, and add to find the total.

Note: This problem is intended for independent practice, giving students a context in which to practice drawing equal groups. Students write the corresponding repeated addition equation and use doubles as a strategy to add efficiently. The allotted time period includes 8 minutes to solve the Application Problem and 10 minutes to complete the Problem Set.



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: Use math drawings to represent equal groups, and relate to repeated addition.

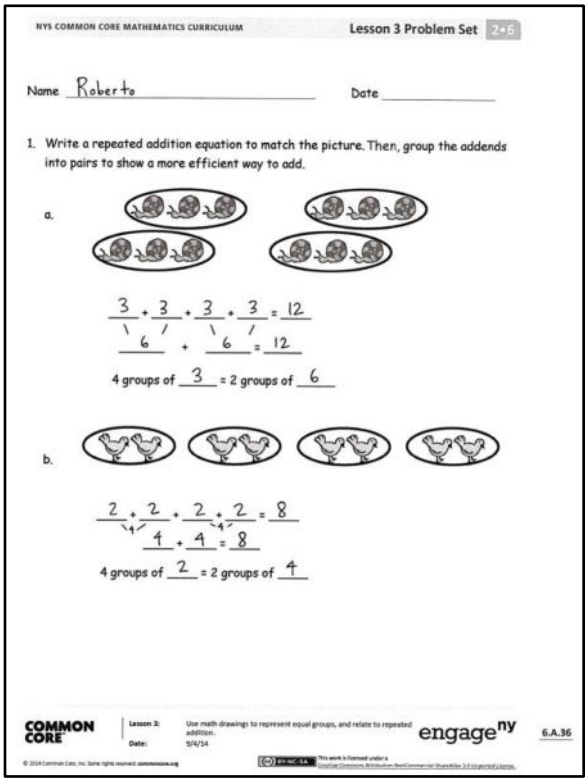
The Student Debrief is intended to invite reflection and active processing of the total lesson experience. Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings 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.

- For Problem 1(a), how did you show a more efficient way to add? How do you know that 4 groups of 3 and 2 groups of 6 are equal?
- For Problem 1(b), how did you bundle the addends into new groups? What was your new equation? Why didn't the total change?
- For Problem 1(c), how did you make fewer groups? Which equation enabled you to add more efficiently? (Note: Students might answer that the longer one was more efficient because they were able to skip-count by twos.)
- For Problem 2(a), how was this problem different from the previous ones? Does every group have a partner? How did you find the total?
- For Problem 2(b), how many pairs did you find? How many new groups did you make? Why did you add on 3?
- What strategies did we use today to add more efficiently?

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 3 Problem Set 2•6

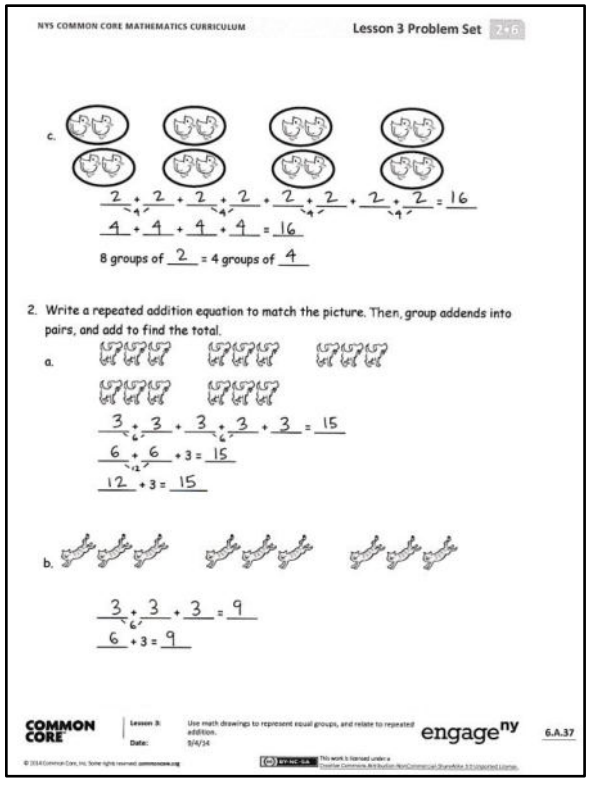
Name Roberto Date

1. Write a repeated addition equation to match the picture. Then, group the addends into pairs to show a more efficient way to add.

a. 3 + 3 + 3 + 3 = 12; 6 + 6 = 12; 4 groups of 3 = 2 groups of 6

b. 2 + 2 + 2 + 2 = 8; 4 + 4 = 8; 4 groups of 2 = 2 groups of 4

COMMON CORE Lesson 3: Use math drawings to represent equal groups, and relate to repeated addition. Date: 9/4/14 engage^ny 6.A.36


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 Problem Set 2•6

c. 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 16; 4 + 4 + 4 + 4 = 16; 8 groups of 2 = 4 groups of 4

2. Write a repeated addition equation to match the picture. Then, group addends into pairs, and add to find the total.

a. 3 + 3 + 3 + 3 + 3 = 15; 6 + 6 + 3 = 15; 12 + 3 = 15

b. 3 + 3 + 3 = 9; 6 + 3 = 9

COMMON CORE Lesson 3: Use math drawings to represent equal groups, and relate to repeated addition. Date: 9/4/14 engage^ny 6.A.37

A

Number Correct: _____

Subtraction Within 20

1.	11 – 10 =	
2.	12 – 10 =	
3.	13 – 10 =	
4.	19 – 10 =	
5.	11 – 1 =	
6.	12 – 2 =	
7.	13 – 3 =	
8.	17 – 7 =	
9.	11 – 2 =	
10.	11 – 3 =	
11.	11 – 4 =	
12.	11 – 8 =	
13.	18 – 8 =	
14.	13 – 4 =	
15.	13 – 5 =	
16.	13 – 6 =	
17.	13 – 8 =	
18.	16 – 6 =	
19.	12 – 3 =	
20.	12 – 4 =	
21.	12 – 5 =	
22.	12 – 9 =	

23.	19 – 9 =	
24.	15 – 6 =	
25.	15 – 7 =	
26.	15 – 9 =	
27.	20 – 10 =	
28.	14 – 5 =	
29.	14 – 6 =	
30.	14 – 7 =	
31.	14 – 9 =	
32.	15 – 5 =	
33.	17 – 8 =	
34.	17 – 9 =	
35.	18 – 8 =	
36.	16 – 7 =	
37.	16 – 8 =	
38.	16 – 9 =	
39.	17 – 10 =	
40.	12 – 8 =	
41.	18 – 9 =	
42.	11 – 9 =	
43.	15 – 8 =	
44.	13 – 7 =	

B

Number Correct: _____

Improvement: _____

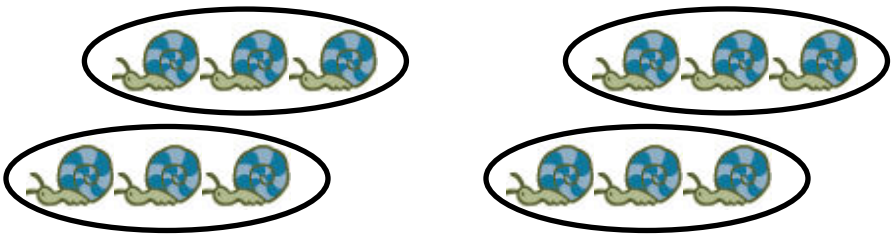
Subtraction Within 20

1.	11 – 1 =	
2.	12 – 2 =	
3.	13 – 3 =	
4.	18 – 8 =	
5.	11 – 10 =	
6.	12 – 10 =	
7.	13 – 10 =	
8.	18 – 10 =	
9.	11 – 2 =	
10.	11 – 3 =	
11.	11 – 4 =	
12.	11 – 7 =	
13.	19 – 9 =	
14.	12 – 3 =	
15.	12 – 4 =	
16.	12 – 5 =	
17.	12 – 8 =	
18.	17 – 7 =	
19.	13 – 4 =	
20.	13 – 5 =	
21.	13 – 6 =	
22.	13 – 9 =	

23.	16 – 6 =	
24.	14 – 5 =	
25.	14 – 6 =	
26.	14 – 7 =	
27.	14 – 9 =	
28.	20 – 10 =	
29.	15 – 6 =	
30.	15 – 7 =	
31.	15 – 9 =	
32.	14 – 4 =	
33.	16 – 7 =	
34.	16 – 8 =	
35.	16 – 9 =	
36.	20 – 10 =	
37.	17 – 8 =	
38.	17 – 9 =	
39.	16 – 10 =	
40.	18 – 9 =	
41.	12 – 9 =	
42.	13 – 7 =	
43.	11 – 8 =	
44.	15 – 8 =	

Name _____ Date _____

1. Write a repeated addition equation to match the picture. Then, group the addends into pairs to show a more efficient way to add.

a. 

_____ + _____ + _____ + _____ = _____

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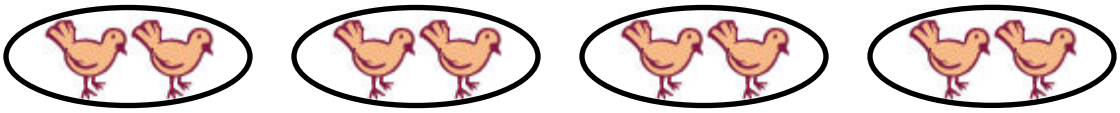
_____ + _____ = _____

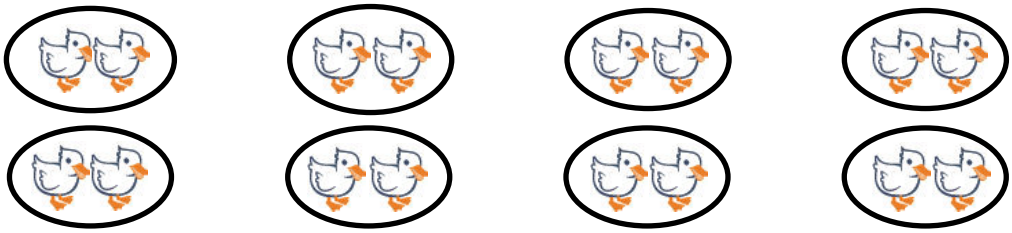
4 groups of _____ = 2 groups of _____

b. 

_____ + _____ + _____ + _____ = _____

_____ + _____ = _____

4 groups of _____ = 2 groups of _____

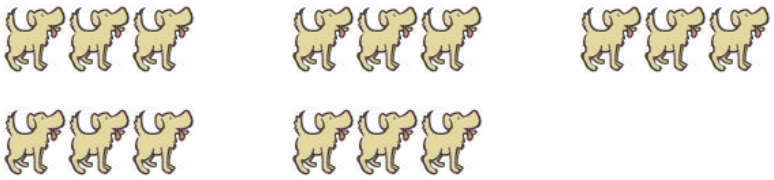
c. 

_____ + _____ + _____ + _____ + _____ + _____ + _____ + _____ = _____

_____ + _____ + _____ + _____ = _____

8 groups of _____ = 4 groups of _____

2. Write a repeated addition equation to match the picture. Then, group addends into pairs, and add to find the total.

a. 

_____ + _____ + _____ + _____ + _____ = _____

_____ + _____ + 3 = _____

_____ + 3 = _____

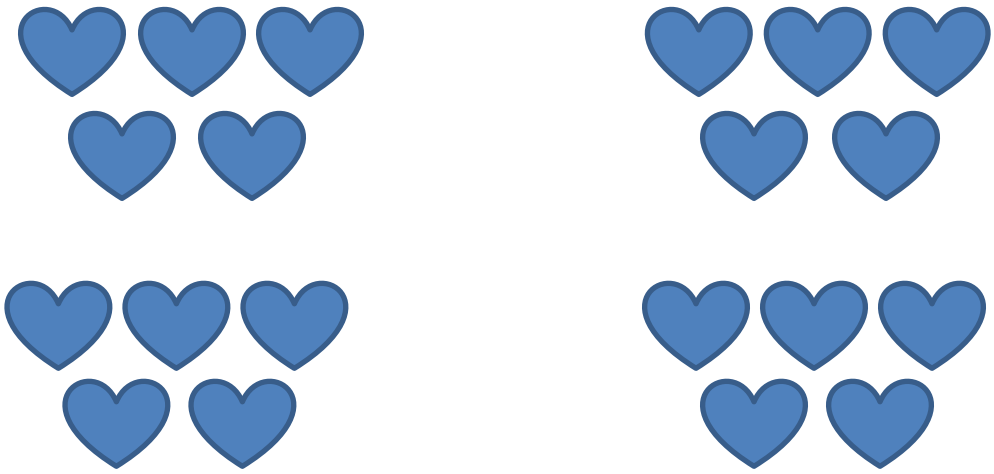
b. 

_____ + _____ + _____ = _____

_____ + 3 = _____

Name _____ Date _____

Write a repeated addition equation to match the picture. Then, group the addends into pairs to show a more efficient way to add.



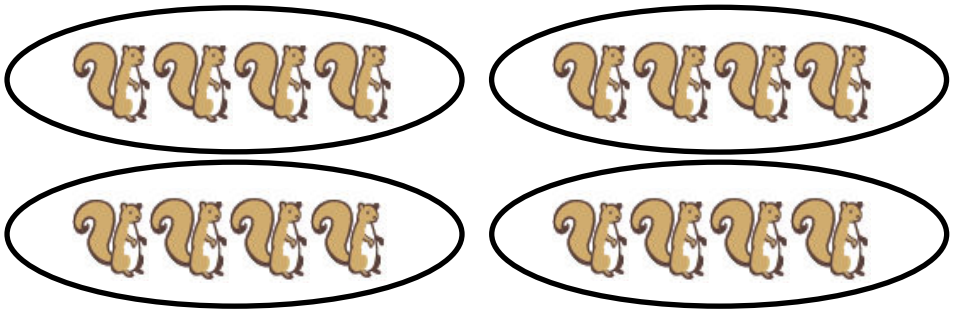
_____ + _____ + _____ + _____ = _____

_____ + _____ = _____

4 groups of _____ = 2 groups of _____

Name _____ Date _____

1. Write a repeated addition equation to match the picture. Then, group the addends into pairs to show a more efficient way to add.

a. 

_____ + _____ + _____ + _____ = _____

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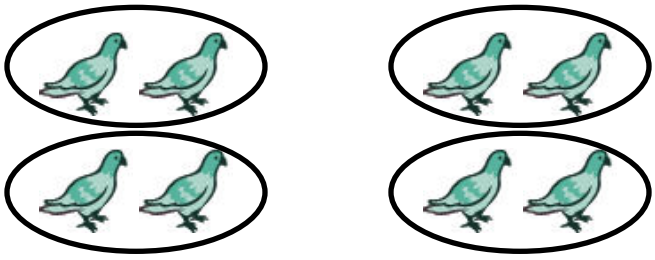
_____ + _____ = _____

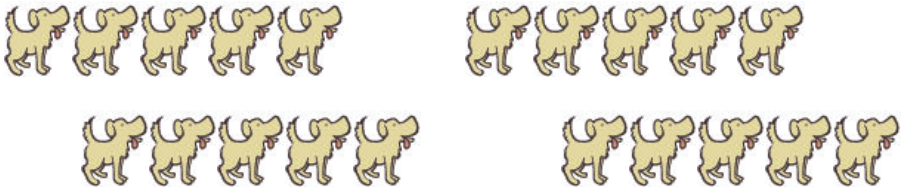
4 groups of _____ = 2 groups of _____

b. 

_____ + _____ + _____ + _____ = _____

_____ + _____ = _____

4 groups of _____ = 2 groups of _____

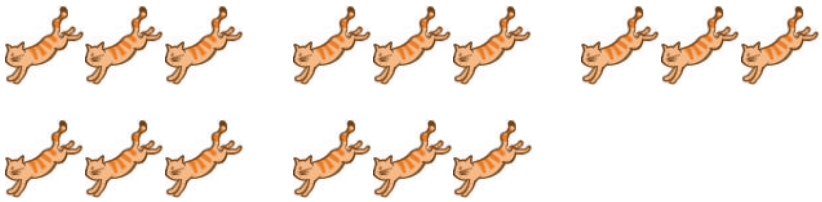
c. 

_____ + _____ + _____ + _____ = _____

_____ + _____ = _____

4 groups of _____ = 2 groups of _____

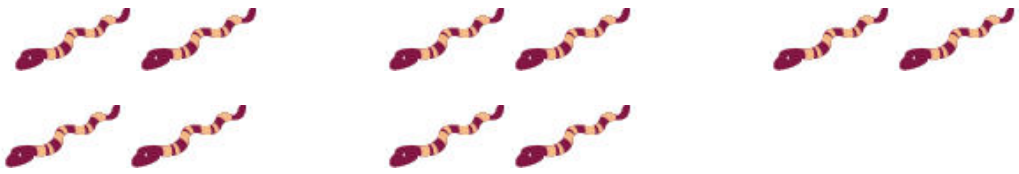
2. Write a repeated addition equation to match the picture. Then, group addends into pairs, and add to find the total.

a. 

_____ + _____ + _____ + _____ + _____ = _____

_____ + _____ + 3 = _____

_____ + 3 = _____

b. 

_____ + _____ + _____ + _____ + _____ = _____

_____ + _____ + 2 = _____

_____ + 2 = _____