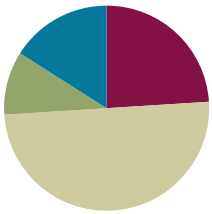
Lesson 27

Objective: Model decompositions of 10 using a story situation, objects, and 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)

- Rekenrek Wave **K.NBT.1** (3 minutes)
- What Is Less? **K.OA.1** (5 minutes)
- Take Apart the Array **K.OA.3** (4 minutes)

Rekenrek Wave (3 minutes)

Materials: (T) 20-bead Rekenrek

Note: This fluency activity anticipates the work of Module 5. Developing automaticity with the counting sequence in conventional language facilitates work with teen numbers.

Count with the Rekenrek the Say Ten Way as described in Lesson 25, but now, continue to 20 if students are ready. After introducing each new number name, use a similar sequence as before, while students use the wave hand motions to indicate increasing and decreasing quantities.

Consider showing the numbers in the 5-group orientation as well so that students can gain flexibility in recognizing the quantities. For example, 13 would be 5 red on the top row, 5 red on the bottom row (mimicking a 5-group arrangement of 10), plus 3 white beads on the top row.

What Is Less? (5 minutes)

Materials: (S) Personal white board

Note: This fluency activity builds on students' understanding of comparison. It also builds fluency with subtraction facts for numbers to 5.

T: (Write 2 on the board.) Think of a number that is less than 2. Write it on your personal white board, and show me.

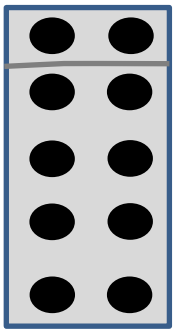
S: (Write 1 or 0.)

T: Write this **subtraction sentence** on your board: 2 minus 1.
S: (Write 2 – 1.)
T: Write the answer, and show me.
S: (Write 2 – 1 = 1.)
T: Say the subtraction sentence.
S: 2 minus 1 equals 1.

Repeat with 3, 4, and 5. Use each of the smaller numbers students identify to build a subtraction equation (e.g., 3 – 1, 3 – 2). Invite students who choose zero to write a subtraction equation using zero and show it to the class. Addition and subtraction of zero is covered in Lesson 37.

Take Apart the Array (4 minutes)

Materials: (S) Array of 10 (Fluency Template) inserted into personal white board



Note: This fluency activity prepares students to work with decomposing 10 at the pictorial level.

Conduct as described in Lesson 25, but now, with decompositions of 10.

Application Problem (5 minutes)

Materials: (S) Paper, crayons

You are having a birthday party! You need 10 party hats for your friends. Draw 10 simple hats. Color some hats red and some blue. Make a number bond about your picture.

Turn and talk with your partner. Do your pictures look the same? Explain to your partner how you decided which way to color your hats. Talk about how your number bonds are the same or different.

Note: Thinking about different ways to decompose 10 serves as the anticipatory set for the lesson.

Concept Development (25 minutes)

Materials: (S) 1 chenille wire stem, 10 pony beads of a single color, personal white board

T: We were just talking about birthday parties! What if you had a birthday party and received 10 presents? Let me draw squares on the board to show your presents. (Demonstrate.) I have 10 presents on the board. I want to color some yellow and some red. Who has an idea to help me?
S: This is like the party hats! → Let's make 5 yellow and 5 red. → We can show them both on our fingers that way.
T: Okay, we will make 5 yellow and 5 red. (Demonstrate.) How could I make a number bond about my picture?
S: Put a 10 in the place for the whole because there are 10 presents. → We have 5 yellow and 5 red. → Each of the parts would be 5.

T: Yes, our parts are both 5 this time, and we have 10 altogether. Would someone like to make the number bond on the class board for us? The rest of you can show your work on your personal white boards. (Allow a student to volunteer to demonstrate. At this point, students should be confident enough in their ability to create number bonds that they should be enthusiastic about demonstrating their work, though offer encouragement and assistance freely!)

T: Did anyone think about the picture in a different way? (Allow several opportunities to create other visual situations with the gifts. Each time, either demonstrate or allow individual students to play the role of teacher by modeling the coloring of the squares and the number bonds on the class board.)

T: 10 is a very special number, isn't it? What seems different about this number compared to the other ones we have looked at so far?

S: It is bigger! → There are 2 numerals now! → It takes all of our fingers.

T: Yes! Now we have 10 ones! You have some beads on your table. Count your beads.

S: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

T: We are going to make bracelets to celebrate this very special number! Count your beads again while you lace them onto the chenille stem. I will come around to help you finish your bracelets. (Assist students in tying the bracelets, circulating to ensure accuracy in counting.)

T: Your bracelets are beautiful! Let's play with the beads. What happens if we slide 1 bead to this side and all of the other beads to the other side of the bracelet? Show me on your bracelets.

S: We still have 10 beads on our bracelet. → Now we have 9 on one side and just 1 on the other.

T: Interesting! Let's make the number bond for what you just did. Please write it on your board while I do it up here. (Demonstrate.) Can anyone help me fill in the parts?

MP.4

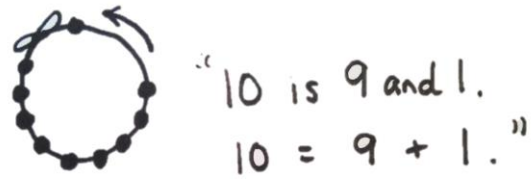
T: I wonder if we could make a number sentence.

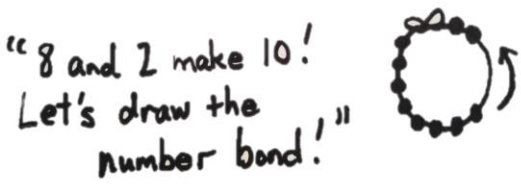
S: 10 is 9 and 1. → 10 = 9 + 1.

T: Great job! What if we slide another bead over?

S: Now we have 8 on one side and 2 on the other. → We made our 10 into parts of 8 and 2 this time.

T: Let's think about the number bond. What are our parts now? Did our whole change? Draw the new number bond on your board.





NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Give students working below grade level or students with processing issues a number bond graphic to fill in. This helps keep the focus on the math content. With more practice, students are able to accomplish the task with less scaffolding.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Scaffold the lesson for English language learners by pointing to the number sentences "10 is 9 and 1" and "10 = 9 + 1" on the board or word wall as the class discusses them. Refer to the visuals of *parts* and *whole*.

Repeat the activity, discussion, and drawing of the number bonds on the boards for the whole sequence of partners to 10.

T: With your friend, spend some time being number detectives with your bracelets. Practice this again. Talk about the groups of bead partners you find hidden in 10, and practice drawing the number bond each time. Do you notice any patterns? (Allow time for sharing and discussion.)

T: You may take your bracelets home to show your friends and family. Don't forget to tell them about the number partners! Be sure to bring them back so we can work with them again tomorrow.

Problem Set (10 minutes)

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

Note: Encourage students to use circles when drawing dragons. They can use the cloud and grass to show which dragons are flying and which are on the ground.

In this lesson, it may again be beneficial for the teacher to read each problem aloud and then to allow students to work on it. Students with a higher-level reading ability could be encouraged to make additional decomposition pictures for 10 on the back of their papers if they finish early.

Student Debrief (8 minutes)

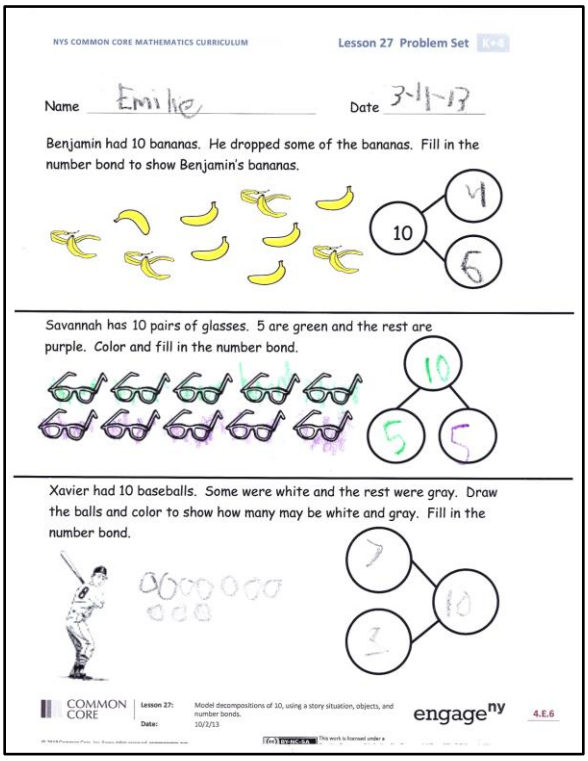
Lesson Objective: Model decompositions of 10 using a story situation, objects, and number bonds.

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.

- Look at the baseball problem. How did you know which numbers to write in the parts of the number bond? Are there other ways you could have done it?
- What strategies did you use when you were making up your own story?
- How did the bracelets help in finding the partners to 10?


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 27 Problem Set K•4

Name Emilie Date 3-1-13

Benjamin had 10 bananas. He dropped some of the bananas. Fill in the number bond to show Benjamin's bananas.

10, 4, 6

Savannah has 10 pairs of glasses. 5 are green and the rest are purple. Color and fill in the number bond.

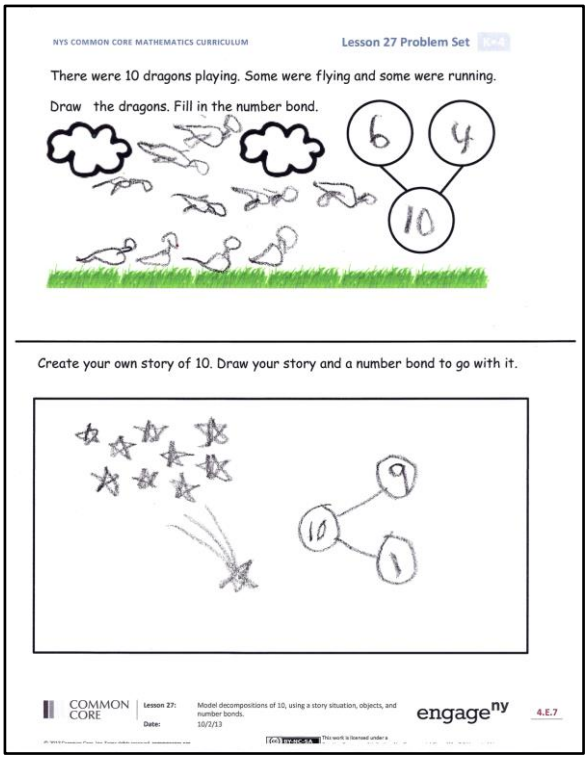
10, 5, 5

Xavier had 10 baseballs. Some were white and the rest were gray. Draw the balls and color to show how many may be white and gray. Fill in the number bond.

7, 10, 3

COMMON CORE Lesson 27: Model decompositions of 10, using a story situation, objects, and number bonds. Date: 10/2/13 engage^ny 4.E.6

- Who can use this bracelet to teach someone how to make number bonds at home tonight? Tell me how you will do it.


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 27 Problem Set K•4

There were 10 dragons playing. Some were flying and some were running.

Draw the dragons. Fill in the number bond.

6 4 10

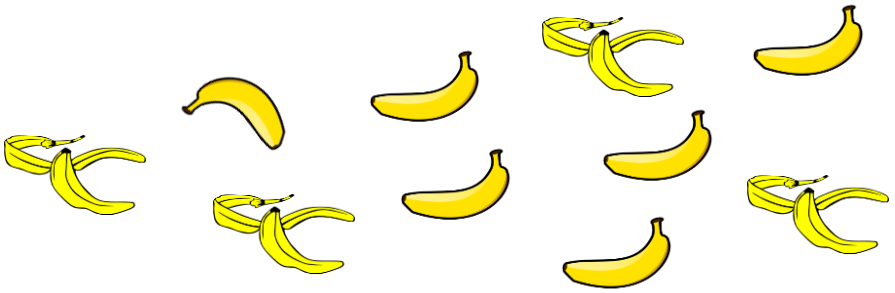
Create your own story of 10. Draw your story and a number bond to go with it.

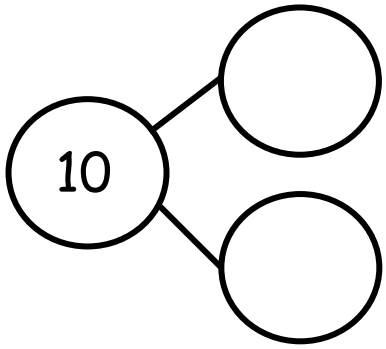
9 10 1

COMMON CORE | Lesson 27: Model decompositions of 10, using a story situation, objects, and number bonds. Date: 10/2/13 engage^ny 4.E.7

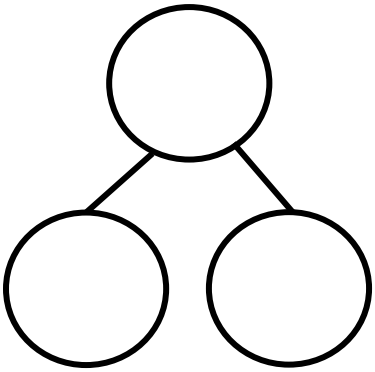
Name _____ Date _____

Benjamin had 10 bananas. He dropped some of the bananas. Fill in the number bond to show Benjamin's bananas.

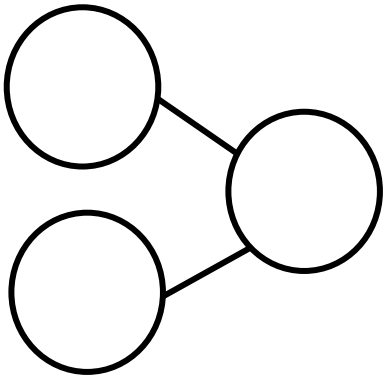




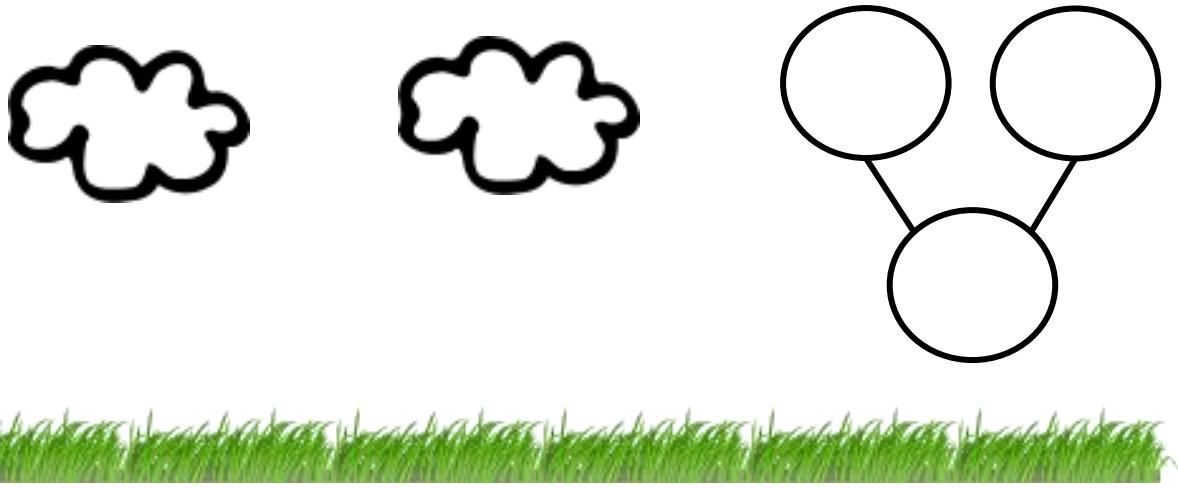
Savannah has 10 pairs of glasses. 5 are green, and the rest are purple. Color and fill in the number bond.



Xavier had 10 baseballs. Some were white, and the rest were gray. Draw the balls, and color to show how many may be white and gray. Fill in the number bond.



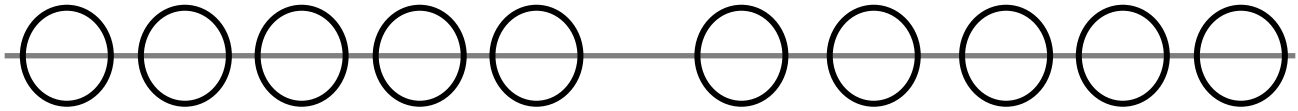
There were 10 dragons playing. Some were flying, and some were running. Draw the dragons. Fill in the number bond.

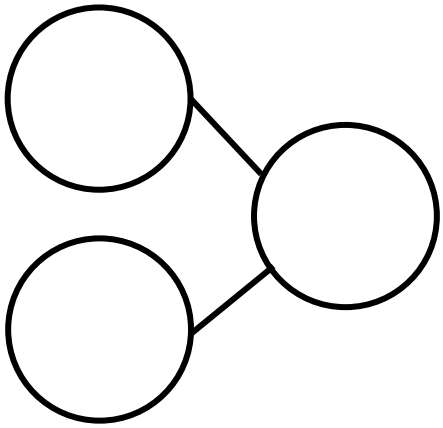


Create your own story of 10. Draw your story and a number bond to go with it.

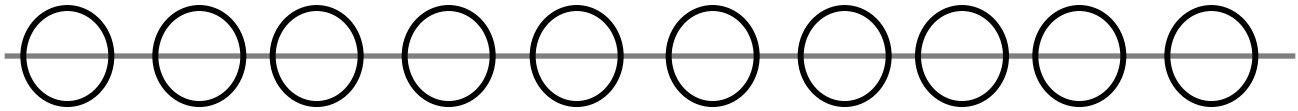
Name _____ Date _____

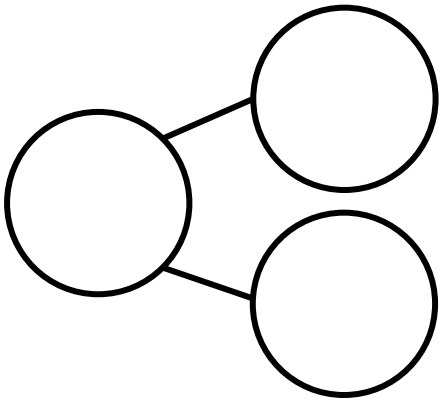
Pretend this is your bracelet.
Color 5 beads blue and the rest green. Make a number bond to match.





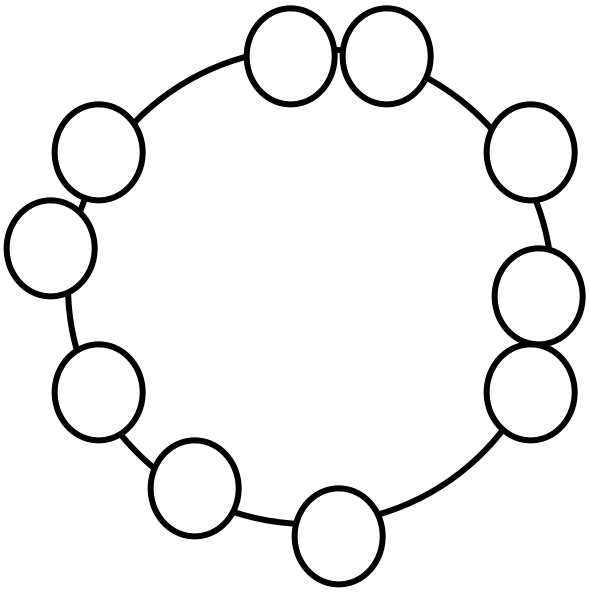
Color some beads yellow and the rest orange. Make a number bond to match.

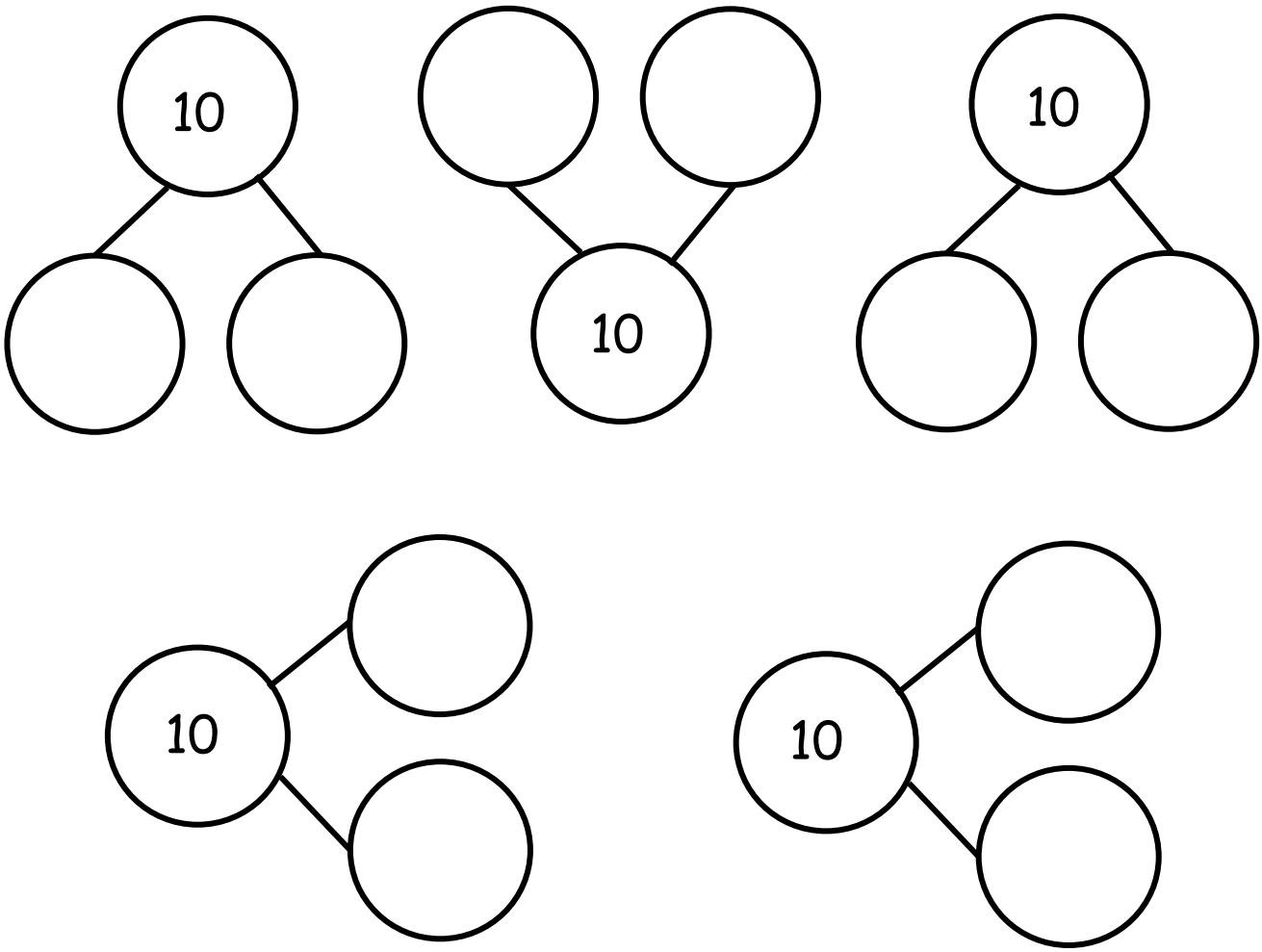




Color some beads yellow and the rest black. Make a number bond to match.

Color some beads purple and the rest green. Make a number bond to match.





array of 10