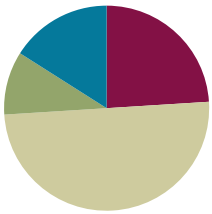
Lesson 26

Objective: Model decompositions of 9 using fingers, linking cubes, 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)
- Race to 5 Addition Game **K.OA.5** (4 minutes)
- Make 9 Matching Game **K.OA.3** (5 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 this time, continue to 15. After introducing each new number name, use the following sequence while students use the wave hand motions to indicate increasing and decreasing quantities: 10, 11, 12, 11, 12, 13, 12, 13, 14, 13, 14, 15, 14.

Race to 5 Addition Game (4 minutes)

Materials: (S) Die with the 6-dot side covered

Note: This activity develops automaticity with addition within 5, part of the fluency goal for this grade.

1. Both partners roll their dice and state their numbers respectively.
2. Both partners roll again and add the previous number to the new number on the die. Both partners state their new equations.
3. Continue the addition race, rolling the dice and adding with speed and accuracy until one of the partners reaches 5 as the total.
4. He must reach 5 exactly, so if either partner reaches a total more than 5, he can roll again.

Here is an example of how the game might unfold:

Partner A: Rolls a 2 and says "2."

Partner B: Rolls a 3 and says "3."

Partner A: Rolls a 1 and says "2 + 1 = 3."

Partner B: Rolls a 2 and says "3 + 2 = 5," winning the race to 5.

Begin a new round if time permits.

Extension: The next time this fluency activity is done, students can record the addition sentences on their personal white boards.

Make 9 Matching Game (5 minutes)

Materials: (S) Matching game cards 0–5 (Lesson 1 Fluency Template 2), matching game cards 6–9 (Lesson 7 Fluency Template 2) per pair

Note: Students find the hidden partners of 9 in support of today's work with composition and decomposition.

1. Shuffle and place the cards facedown in two equal rows.
2. Partner A turns over two cards.
3. If the total of the numbers on both cards is 9, then Partner A collects both cards. If not, then Partner A turns them back over in their original place facedown.
4. Repeat for Partner B.

Scaffold: Provide each partner with a stick of 9 cubes to help the pair determine the missing part. For example, a student turns over 4 and then breaks off 4 cubes, revealing 5 as the missing part. As a result, the partners know to look for the card with the number 5.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Have students working below grade level who may be having difficulty finding partners to 9 practice with interactive technology tools such as the one found here: http://www.ictgames.com/save_the_whale_v4.html.

Such practice helps students feel more confident and better able to participate in the lesson.

Application Problem (5 minutes)

Materials: (S) Paper, green and blue crayons

It is laundry day. We have 9 extra socks! Some are green, and the rest are blue. Draw the set of green socks and the set of blue socks. Make a number bond to help tell about your picture.

Turn and talk to your partner about your drawings and number bonds. Do they look alike? Are your sets of socks different?

Turn your paper over, and show the story a different way.

Note: Use this time to see which students might need support finding partners for 9 prior to identifying decomposition patterns in today's lesson.

Concept Development (25 minutes)

Materials: (S) 9 linking cubes (5 blue and 4 red), personal white board

T: Lee had 9 blocks. Hold up 9 fingers to show how many blocks she had. Show me the Math Way!

T: 5 of her blocks were red, and the rest were blue. Show me her red blocks with your fingers. How many?

S: (Show 5 fingers.)

T: Show me the blue blocks. How did you know how many blue blocks she had?

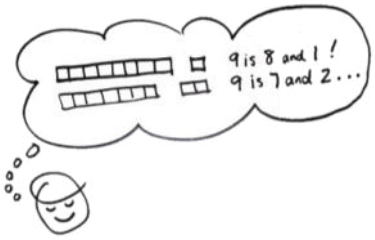
S: I needed the other 4 fingers to get to 9. → 5 red and 4 more make 9 blocks in all. → 9 is the same as 5 and 4 together.

T: Could we draw a number bond showing our story? Where would we put our whole and our parts in our number bond? (Demonstrate the number bond on the board, and ask students to recreate the bond on their personal white boards.)

S: 9 goes in the place for the whole number of blocks! → The parts are 5 and 4 for the different colors.

T: Take out your linking cubes, and put them in a stick. Use all of the blue cubes first, and then use the rest of the cubes. How many cubes are in your stick?

S: 9.



T: Take off 1 red cube. Do you still have 9 cubes in all? What are the parts now?

S: We still have 9 cubes. → We made it into 8 and 1.

T: Draw the number bond on your board. (Demonstrate.)

T: Now, take another cube off your long stick, and put it together with the 1 cube. Do we still have 9 cubes? What are your new parts?

S: We still have 9 in all, but now, we have a 7-stick and a 2-stick.

MP.8

T: Great! Let's make a number bond with the new parts. (Continue the exercise with new situations and number bonds, removing 1 cube at a time until students end with 1 and 8.)

T: Did anyone notice a pattern while we did this with your cubes or with the number bonds?

S: Every time we take off a cube, the other part gets bigger! → The other part gets smaller. → One gets 1 less, and the other gets 1 more. → The 9 in the number bond doesn't change!

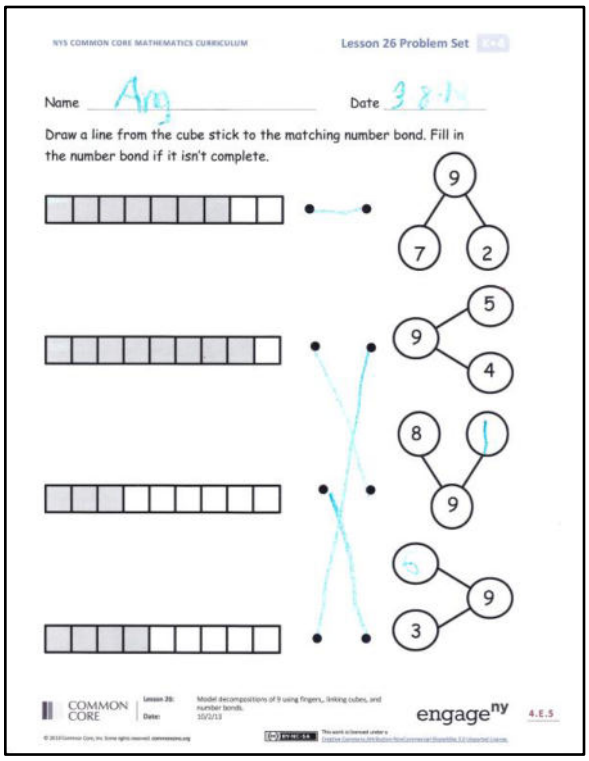
NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Make sure English language learners understand the term *pattern* so they can participate in that part of the lesson. Show examples of patterns and non-patterns so that when asked if anyone noticed a pattern, they can answer.

T: Put your 9-stick together again. Using your cubes, turn and work with your friend to find hidden partners inside 9. Could you think of a story to tell about the cubes? Be sure to write each set of partners in number bonds on your personal white board! (Allow time for sharing and discussion.)

Problem Set (10 minutes)

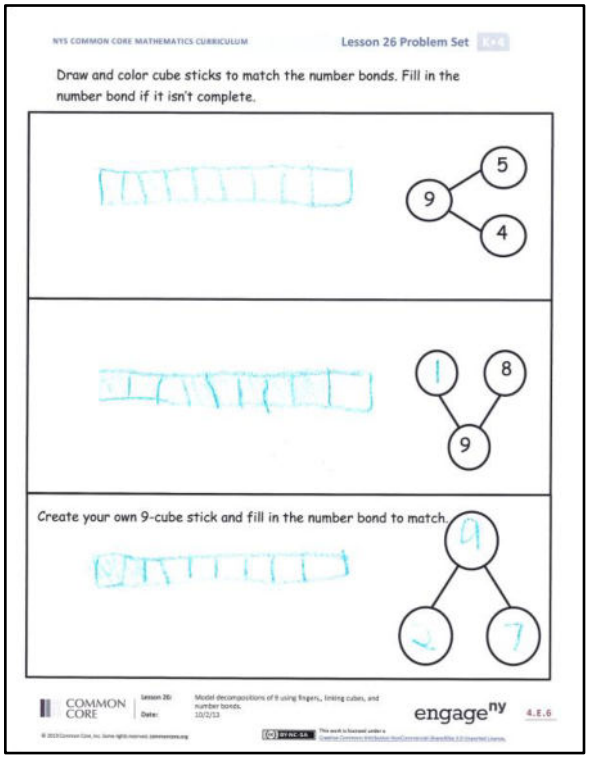
Students should do their personal best to complete the Problem Set within the allotted time.


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 26 Problem Set

Name Amy Date 9-1-13

Draw a line from the cube stick to the matching number bond. Fill in the number bond if it isn't complete.

COMMON CORE Lesson 26: Date: Model decompositions of 9 using fingers, linking cubes, and number bonds. 10/2/13 engage^ny 4.E.5


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 26 Problem Set

Draw and color cube sticks to match the number bonds. Fill in the number bond if it isn't complete.

COMMON CORE Lesson 26: Date: Model decompositions of 9 using fingers, linking cubes, and number bonds. 10/2/13 engage^ny 4.E.6

Student Debrief (8 minutes)

Lesson Objective: Model decompositions of 9 using fingers, linking cubes, 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.

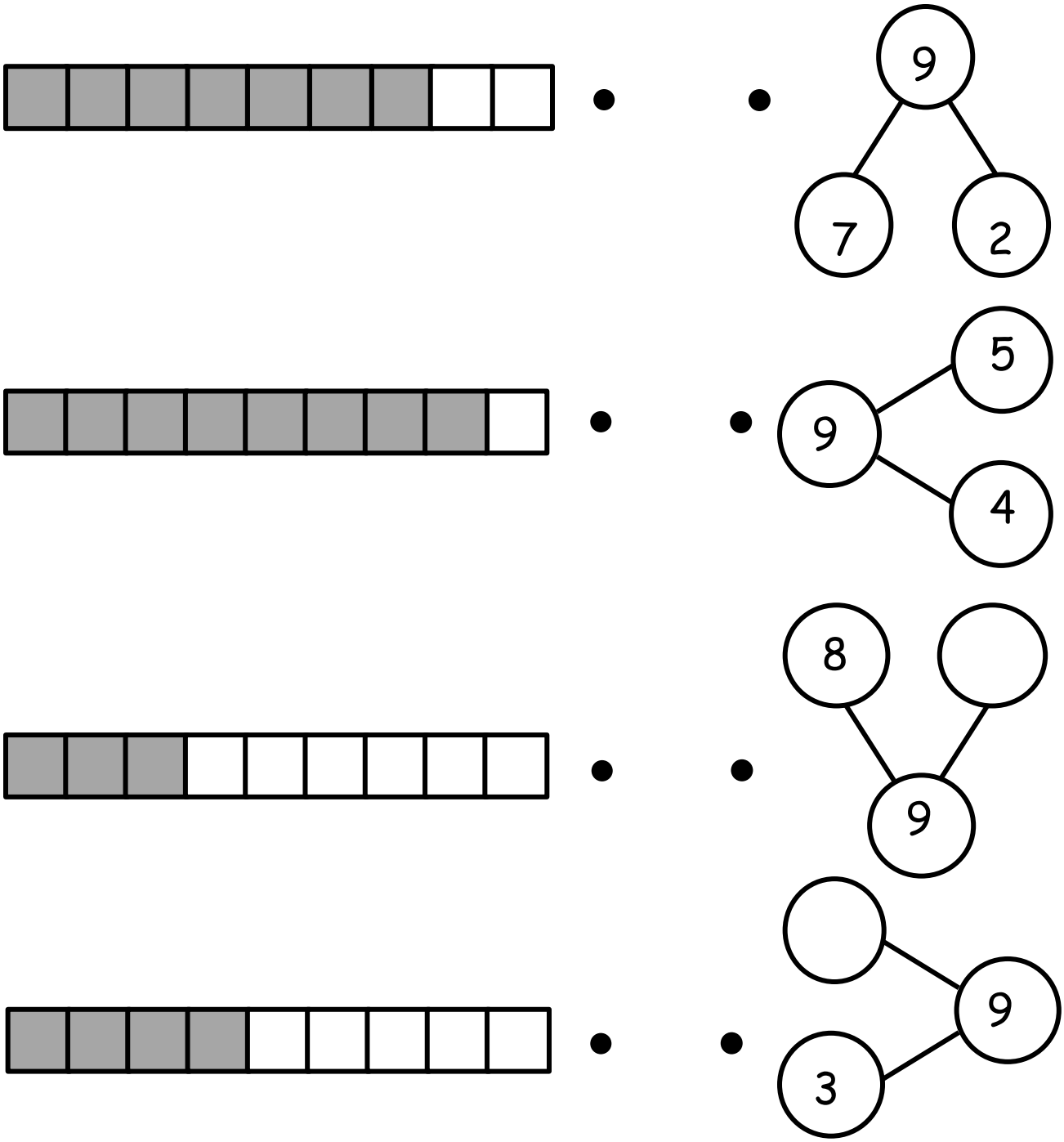
- How did you know which cube sticks matched the number bonds on the first page of the Problem Set?
- How did the cube sticks you colored help you finish the number bonds on the second page of the Problem Set?
- How is using your fingers like using cubes to solve a problem?
- When you were working with the cube sticks in today's lesson, did you notice any patterns?
- What are some of the partners you found to make 9? Tell me using an **addition sentence** starting with 9. (As students list the partners, write them on the board to help them see the pattern.)

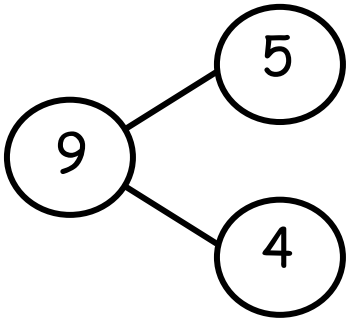
$9 = 8 + 1$ $9 = 4 + 5$
$9 = 7 + 2$ $9 = 3 + 6$
$9 = 6 + 3$ $9 = 2 + 7$
$9 = 5 + 4$ $9 = 1 + 8$

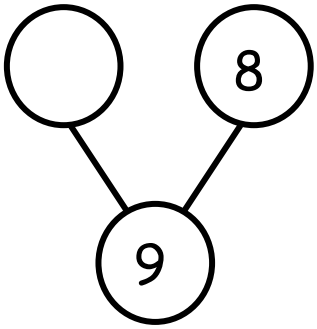
Name _____ Date _____

The squares below represent cube sticks.

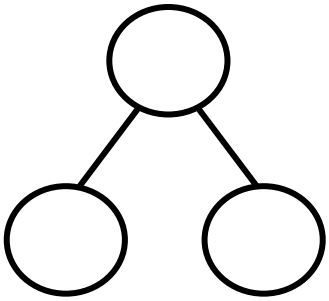
Draw a line from the cube stick to the matching number bond. Fill in the number bond if it isn't complete.





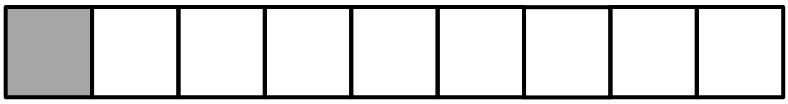


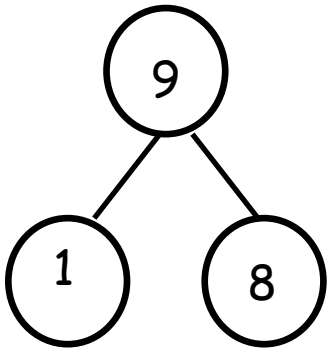
Create your own 9-cube stick, and fill in the number bond to match.



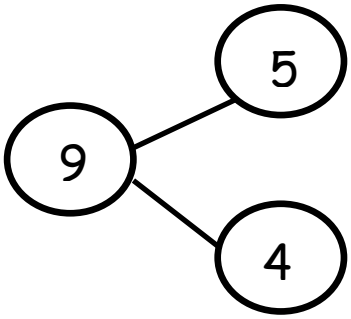
Name _____ Date _____

The squares below represent cube sticks.
Do the linking cube sticks match the number bond? Circle yes or no.

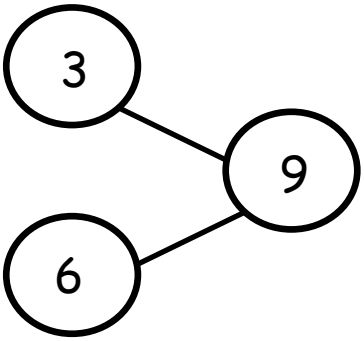




Yes No



Yes No



Yes No

Make the number bond match the cube stick.