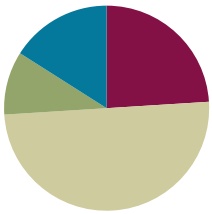
Lesson 10

Objective: Model decompositions of 6–8 using linking cube sticks to see patterns.

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)

- Sprint: Make 6 **K.OA.5** (12 minutes)

Sprint: Make 6 (12 minutes)

Materials: (S) Make 6 Sprint (2 copies)

Note: This Sprint focuses on composing 6 in anticipation of the Concept Development.

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 6. (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.

Application Problem (5 minutes)

Materials: (S) 6-stick of linking cubes (per pair), personal white board

Time for a game of Snap! Hold your 6-stick behind your back. When your partner says, "Snap!" break your 6-stick into two parts. Show your friend one of the parts, and see if she can guess the other part. If she can't guess, show her the missing piece.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Encourage students, especially English language learners, to use the math vocabulary taught by extending the game, asking them to tell their partners, for example, "8 is 7 and 1," after they have guessed the missing part at every turn.

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On your personal white board, draw the number bond about your game. Then, it will be your turn. Try it again with a 7-stick and then an 8-stick!

Note: This Application Problem serves as a review for today's lesson.

Concept Development (25 minutes)

Materials: (S) Linking cube 5-stick, 5 additional loose linking cubes of another color

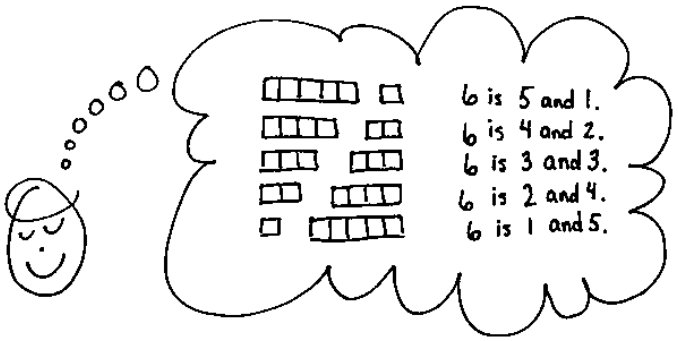
T: Add 1 cube to the end of your 5-stick. How many cubes are in your stick now?

S: 6.

T: Take off 1 cube, and put it on the table. Tell me what the partners are right now.

S: 5 and 1.

T: (Write 6 = 5 + 1.) Say the number sentence with me. Rather than saying "is the same as," let's say "**equals**."



S: 6 equals 5 and 1.

T: Take off another cube, and add it to the cube on the table to make a 2-stick. What are the partners now?

S: 4 and 2.

T: (Write 6 = 4 + 2 underneath the first equation.) Say it with me.

S: 6 equals 4 and 2.

Continue with the exercise until students are left holding only 1 cube.

S: 6 equals 1 and 5.

T: Did anyone notice any patterns?

MP.8

S: The 6 is always the same. → The number in the middle is getting 1 smaller each time. → The number on the end gets 1 bigger every time.

T: You are right! There is a pattern. Let's put our 6-stick back together and then add one more cube. How many are in our stick now?

S: 7.

T: Play the same game with your partner but with 7 cubes! Move a cube from one stick to the other, so one stick has 1 less, and the other has 1 more. Each time, use your words, 7 equals 6 and 1, for example.

Repeat the process with 8 cubes, too. Students who need it might be in a small group with the teacher to support them in the use of the language and the systematic movement of 1 cube.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Give students with disabilities and students working below grade level a chance to get extra practice finding partners of 6, 7, and 8 using interactive technology such as the one found at http://www.ictgames.com/save_the_whale_v4.html.

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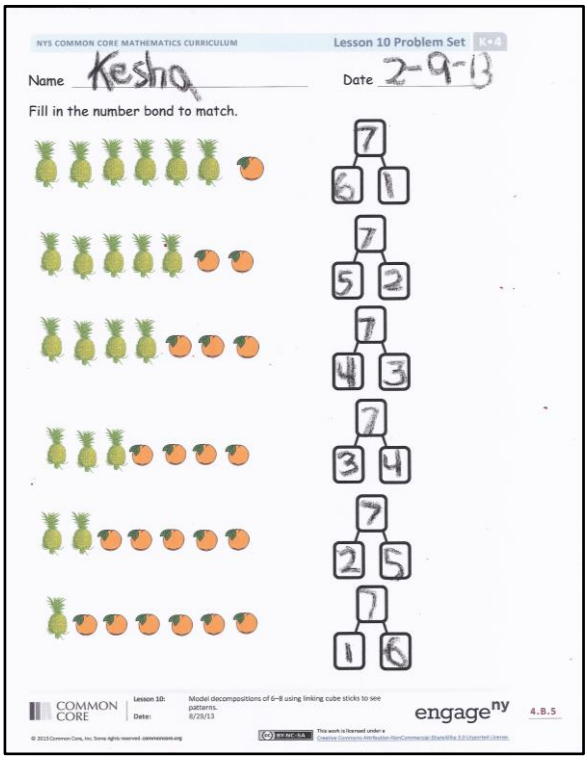
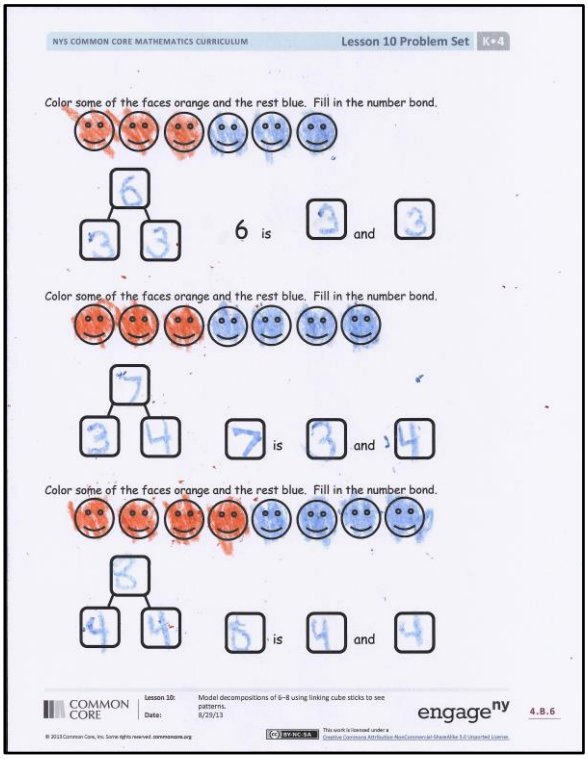
Problem Set (10 minutes)

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





Student Debrief (8 minutes)

Lesson Objective: Model decompositions of 6–8 using linking cube sticks to see patterns.

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 Student 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.

- In the Problem Set, when you were counting the pineapples and the oranges, were there any sets that you could count faster than the others? Why or why not?
- What was the difference when you were filling in the parts of the number bonds for the fruit and the faces? (Parts are divided for you with the fruit. There is a *1 more* pattern with the fruit.)
- What patterns did you notice when we were working with your 6-stick?
- What did you notice about the patterns with the 7- and 8-sticks? Were the patterns similar?
- If we were to play the game with a 5-stick, do you think the pattern would still be similar?

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Circle the number to make 6.

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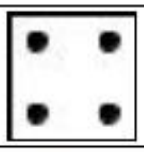
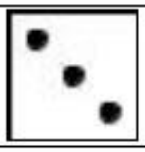
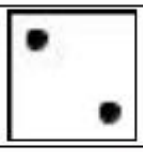
3			
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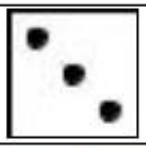
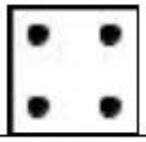
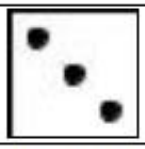
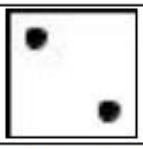
6		 	
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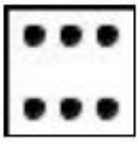
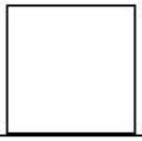
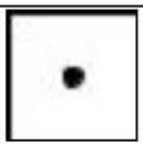
8			
9			
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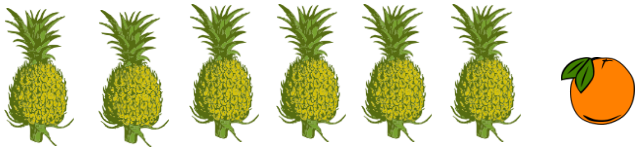
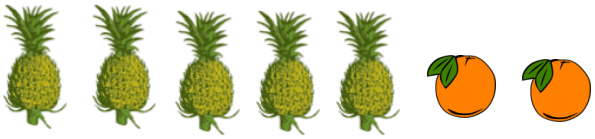
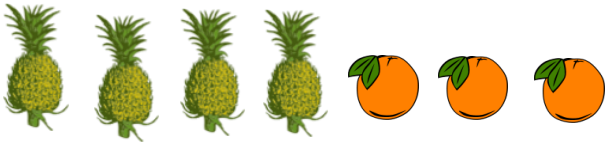
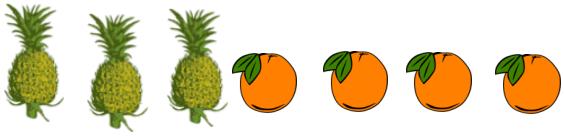
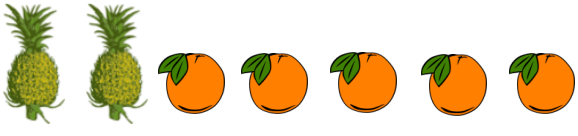
Fill in the number bond to match.

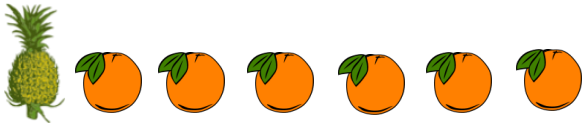


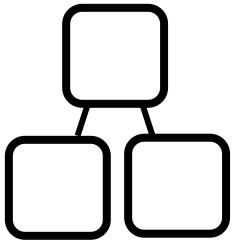


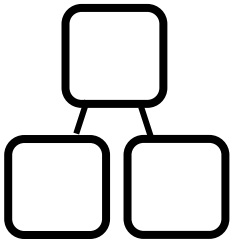


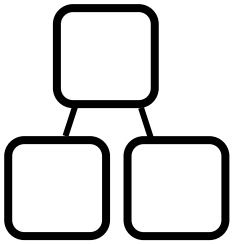


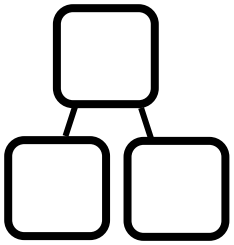


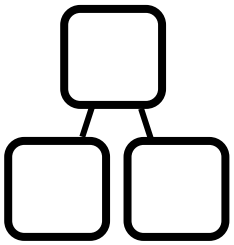


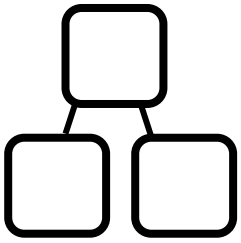












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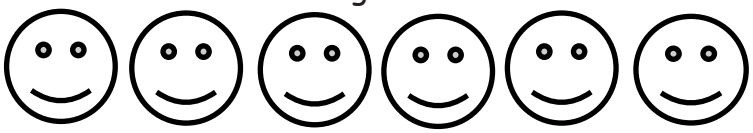
Color some of the faces orange and the rest blue. Fill in the number bond.



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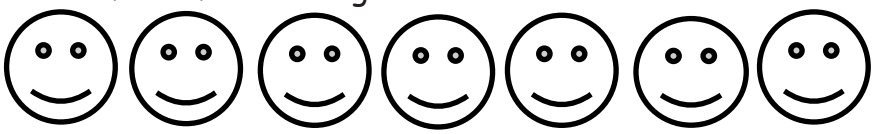

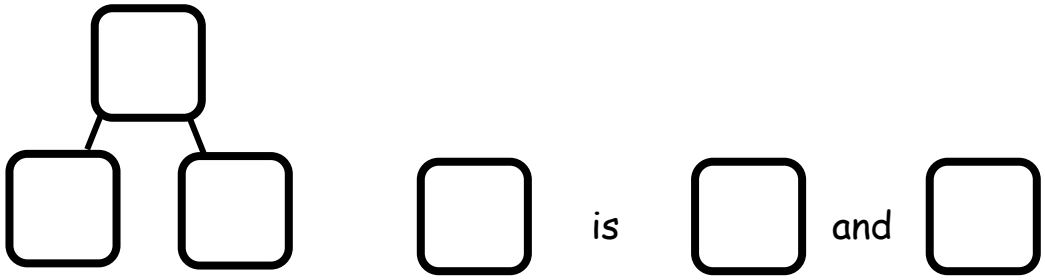

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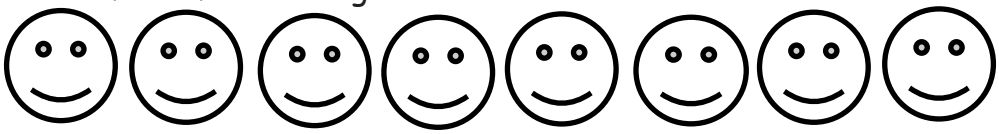

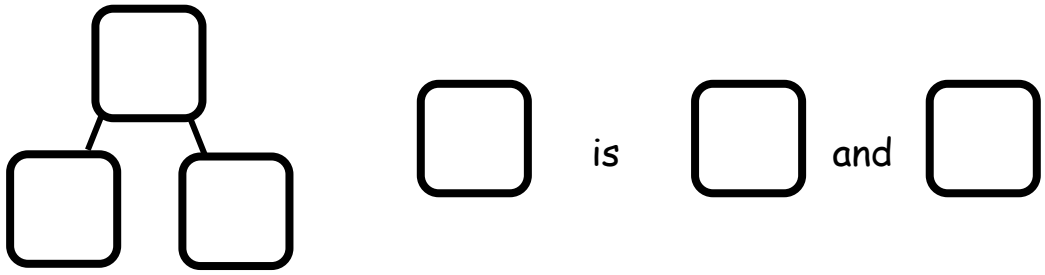

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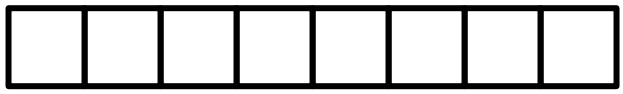
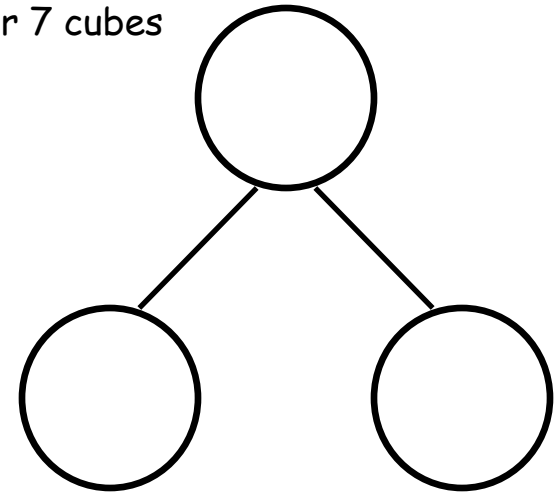
Name _____ Date _____

These squares below represent cubes. Color 7 cubes green and 1 blue. Fill in the number bond.





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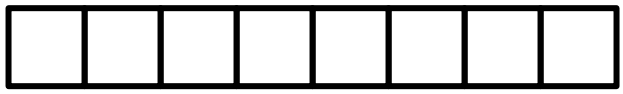
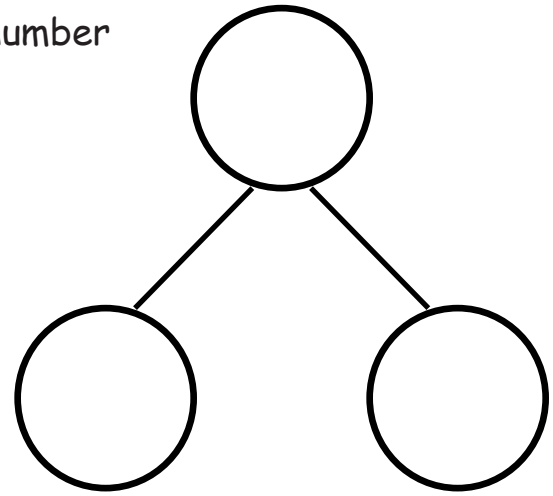
Color 6 cubes green and 2 blue. Fill in the number bond.





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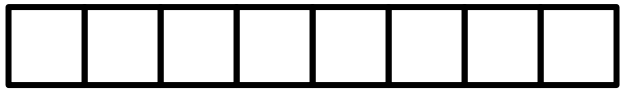
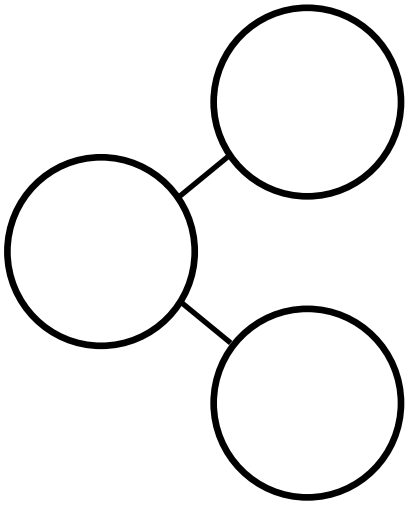
Color some cubes green and the rest blue. Fill in the number bond.





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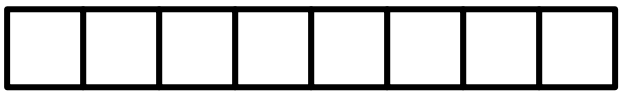
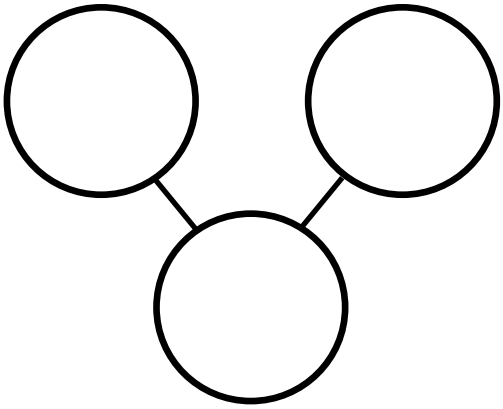
Color 4 cubes green and 4 blue. Fill in the number bond.





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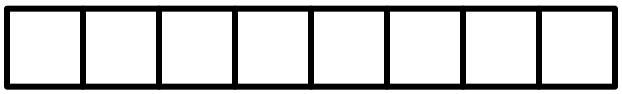
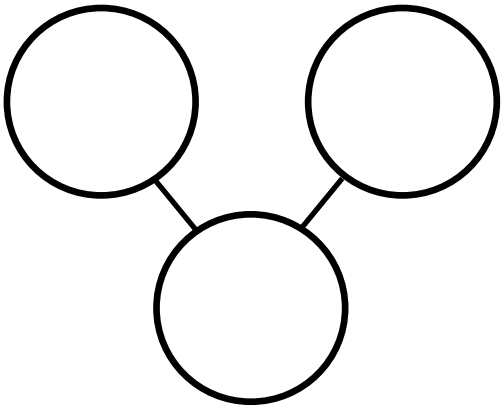
Color 3 cubes green and 5 blue. Fill in the number bond.





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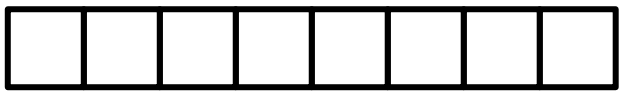
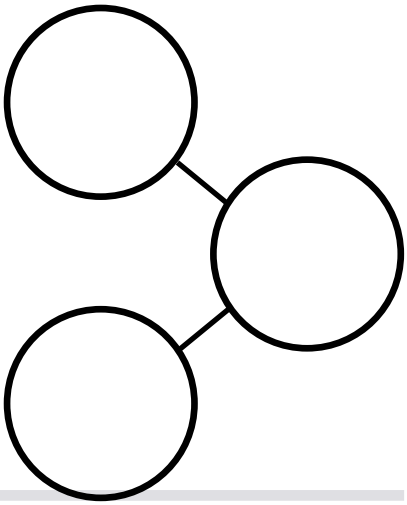
Color some cubes green and the rest blue. Fill in the number bond.





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