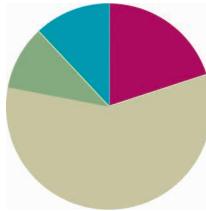


## Lesson 4

**Objective:** Compare the length of linking cube sticks to a 5-stick.

### Suggested Lesson Structure

■ Fluency Practice	(10 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(29 minutes)
■ Student Debrief	(6 minutes)
<b>Total Time</b>	<b>(50 minutes)</b>



### Fluency Practice (10 minutes)

- Show Me Longer and Shorter **K.7A, K.7B** (3 minutes)
- Show Me Fingers the Say Ten Way **K.2E, K.2F** (4 minutes)
- What's Your Favorite? **K.2G, K.8A, K.8B, K.8C** (3 minutes)

### Show Me Longer and Shorter (3 minutes)

Note: This kinesthetic fluency activity reviews vocabulary.

Conduct the activity as described in Lesson 2, but with *longer* and *shorter*. Now, students extend their hands from side to side to indicate length.

### Show Me Fingers the Say Ten Way (4 minutes)

- T: You're getting very good at counting on your fingers the Say Ten way! Show me ten 1.  
 S: Ten (push out both hands as if doing a push-up exercise in the air) and (closed fists, close to body), 1 (push out the left hand pinky finger).  
 T: Show me ten 2.  
 S: Ten (push out both hands as if doing a push-up exercise in the air) and (closed fists, close to body), 2 (push out the left hand pinky and ring fingers).

Continue in a predictable pattern and then randomly.

### What's Your Favorite? (3 minutes)

Materials: (T): 5-column grid labeled as below displayed on chart paper or digitally (S):1 sticky note per student

Note: This fluency activity maintains students' understanding of representing and interpreting data in object graphs.



T: (Display a three – column grid labeled as “red”, “blue”, “yellow” with cells large enough to accommodate the sticky notes titled Our Favorite Colors.) Of these, which color do you like the best? Place your sticky note in the column to show your choice.

S: (Place sticky notes.)

T: Which color do most of us prefer? How can you tell?

S: Blue! The blue column of sticky notes is taller than the other colors!

Encourage students to interpret graph data with such questions as:

Do fewer students prefer red or blue? How can you tell?

Which color received the least amount of votes? How can you tell?

Do more students prefer yellow or red color? How can you tell?

### Application Problem (5 minutes)

Write the following sentence frame on the board, and then read it to the students.

I am taller than \_\_\_\_\_. I am shorter than \_\_\_\_\_.

Draw two things on your paper that would make your sentence true. Tell your sentence to your partner. Does he agree that it is true?

Note: Mentally comparing the height or length of two different objects to a third object provides a good cumulative review of the topic to date. This helps students be fully prepared for a more abstract development of measurement in upcoming lessons. Circulate during the activity to ensure that students are completing the sentence.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Scaffold the Application Problem for English language learners, as well as students with disabilities, if needed, by asking questions such as, “Which is longer, the crayon or the ruler?” and “Which is shorter, the paper clip or the pencil?” Continue to ask questions, gradually leading students to independence.

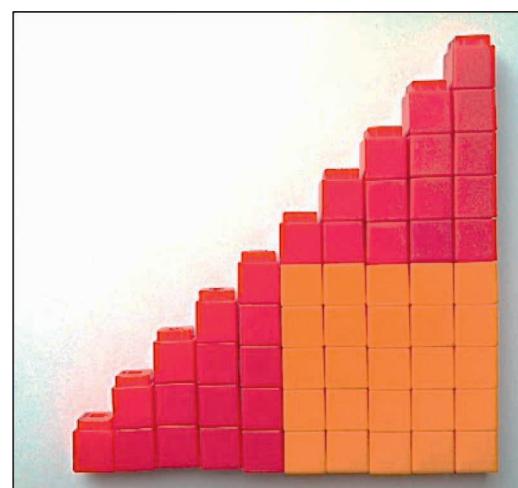
### Concept Development (29 minutes)

Materials: (S) Bag of loose linking cubes per pair: 40 red and 15 of another color or 30 of one color and 25 of another, depending on how you build the stairs (the latter is pictured below), longer or shorter mat (Template)

T: Do you remember the number stairs we made earlier this year? With your partner, make a set of red number stairs from 1 to 5.

S: (Create stairs.)

T: What did we do to make the rest of the stairs?



- S: We made a bunch of 5-sticks, and then we put other cubes on top.
- T: You have great memories! Let's do that again. Use the rest of your red cubes (or orange cubes) to make as many 5-sticks as you can. Then, add your other cubes to make the rest of your number stairs. Put them in order so you make sure you have them all.
- S: (Complete and arrange number stairs.)
- T: What do you notice about the number stairs?
- S: Some are all red. → Some have two colors. → Some are longer. → Some are shorter.
- T: Let's count to make sure we aren't missing any!
- S: 1. 1 more is 2. 2. 1 more is 3. 3. (Continue the pattern through 10.) 10.
- T: Now, mix them all up. Can you find your 5-stick? Hold it up for me to see. How many cubes?
- S: 5.
- T: Let's compare with your 5-stick! We will use this new work mat to help us organize the rest of the stairs. (Pass out work mat.) Choose another cube stick from your desk. Is that stick longer than or shorter than your 5-stick? (Encourage students to use the sentence, "My \_\_\_\_\_ stick is shorter than/longer than my \_\_\_\_\_ stick.")
- S: (Answers vary.)
- T: If your stick is longer than your 5-stick, put it on this side of the mat. (Demonstrate.) If it is shorter, put it on this side. (Demonstrate.) Choose another one. Compare it to your 5-stick. Which side should it go on? (Continue the activity until all sticks have been compared.)
- T: Take all of the sticks off your mat, and mix them up again on your desk. Find your 5-stick. This time, I am going to see how long it takes you to measure and sort your sticks onto your work mat. Ready? Set. Go! (Count while students quickly sort sticks. If necessary, repeat the activity until students demonstrate fluency and confidence with comparing and sorting.)
- T: Great! Now, take a minute to look at your work mat with your partner. Talk about what you notice about the sticks that you sorted. (Circulate to observe discussions. Observe to determine whether students are making the connection between sticks longer than/shorter than the 5-stick and numbers that are greater than/less than 5. Also, observe to determine whether students detect the connection between length and color.)



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Push the comprehension of students working above grade level by asking them to explain and defend their placement of shorter than/longer than linking cube sticks to a friend who is visually impaired.

This would be a good time to call on students to make a comparison using the sentence, “My \_\_\_\_\_ stick is shorter/longer than my \_\_\_\_\_ stick.”

T: Put your sticks away carefully because we will be using them again tomorrow.

### Problem Set (10 minutes)

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

### Student Debrief (6 minutes)

**Lesson Objective:** Compare the length of linking cube sticks to a 5-stick.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

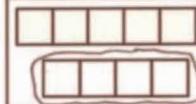
Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

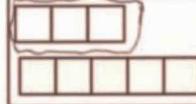
- How did you compare the sticks in the sorting activity? (Review the importance of endpoint alignment.)
- Was it easier to sort the sticks the second time? Why?
- When you were sorting the sticks, did you notice any patterns?
- Did you notice any clues from the colors of the sticks that helped you with your sort?

Name William Date 6/12/13

Circle the shorter stick.



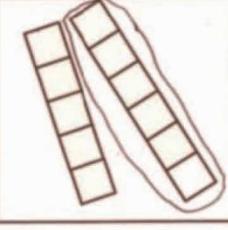
How many linking cubes are in the shorter stick? Write the number in the box.

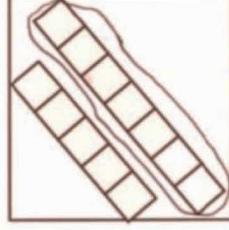
How many linking cubes are in the shorter stick? Write the number in the box.

Circle the longer stick.

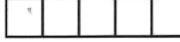


How many linking cubes are in the longer stick? Write the number in the box.

How many linking cubes are in the longer stick? Write the number in the box.

Draw a stick shorter than my 5-stick.



---

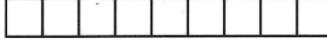
Draw a stick longer than mine.



---

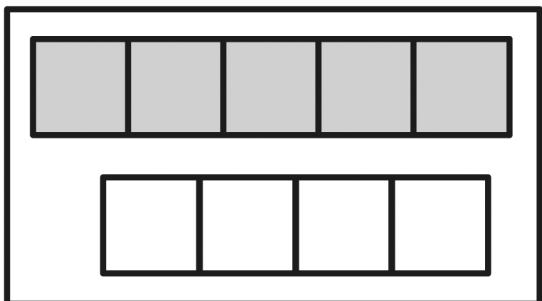
Draw a stick shorter than mine.

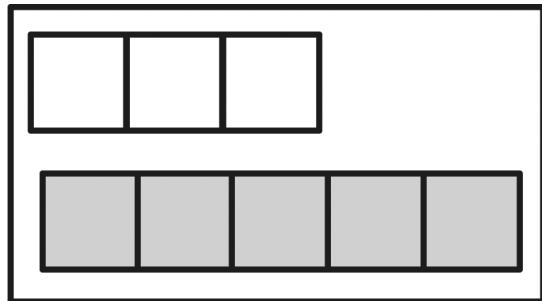

Name \_\_\_\_\_

Date \_\_\_\_\_

Circle the shorter stick.

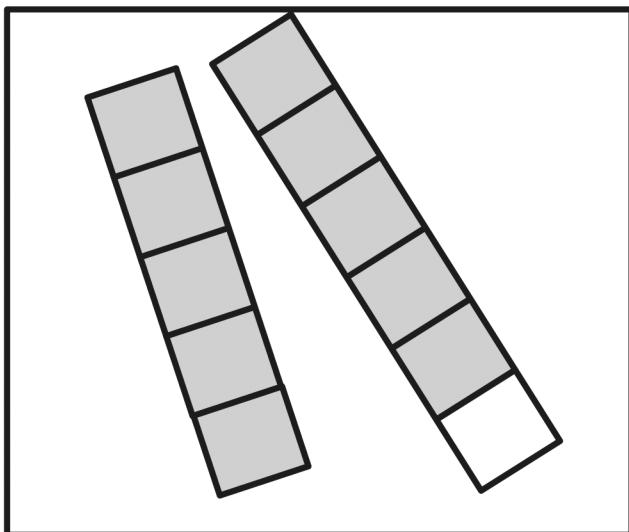


How many linking cubes are in the shorter stick? Write the number in the box.

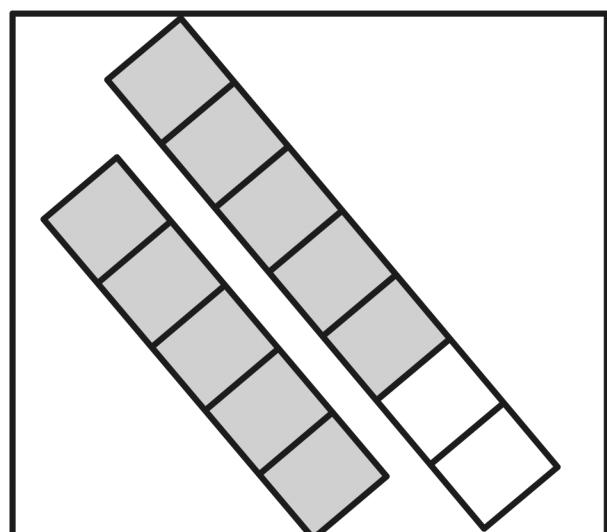


How many linking cubes are in the shorter stick? Write the number in the box.

Circle the longer stick.



How many linking cubes are in the longer stick? Write the number in the box.



How many linking cubes are in the longer stick? Write the number in the box.

Draw a stick **shorter than** my 5-stick.



---

Draw a stick **longer than** mine.



---

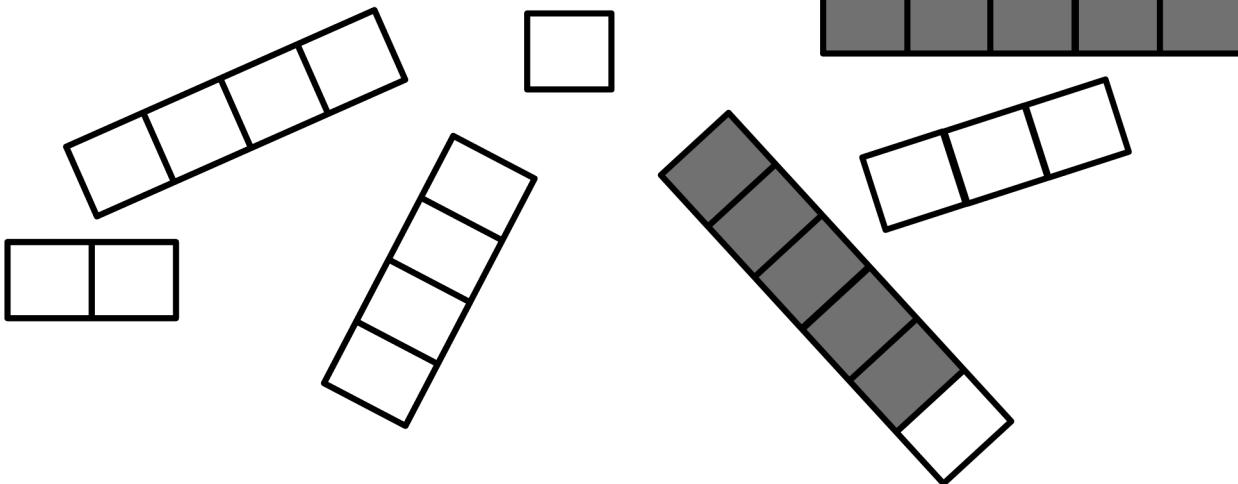
Draw a stick **shorter than** mine.



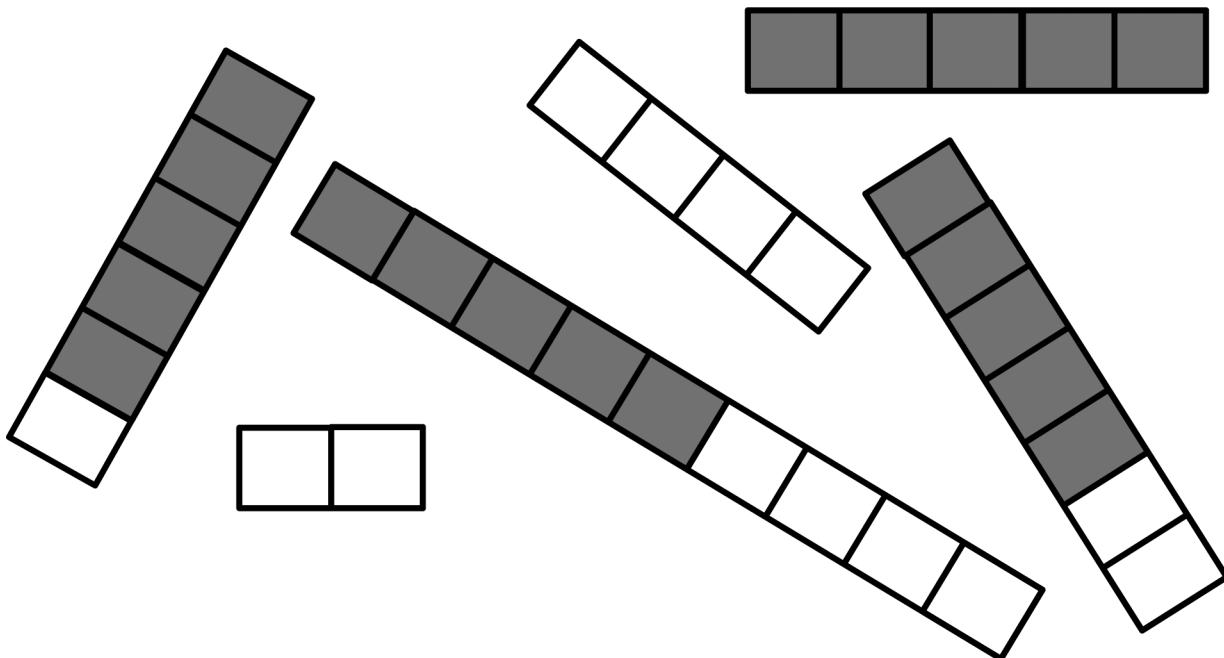
Name \_\_\_\_\_

Date \_\_\_\_\_

Use a red crayon to circle the sticks that are shorter than the 5-stick.



Use a blue crayon to circle the sticks that are longer than the 5-stick.



On the back, draw a 7-stick. Draw a stick longer than it. Draw a stick shorter than it.

**Shorter than my 5-stick:**

**Longer than my 5-stick:**

---

longer or shorter mat



**Lesson 4:** Compare the length of linking cube sticks to a 5-stick.