

Lesson 6

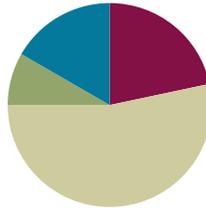
Objective: Order, measure, and compare the length of objects before and after measuring with centimeter cubes, solving *compare with difference unknown* word problems.

Related Topics:

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Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(32 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (13 minutes)

- Addition with Cards **1.OA.6** (7 minutes)
- Speed Writing by Twos **1.OA.5** (3 minutes)
- Cold Call: Number Sentence Swap **1.OA.4** (3 minutes)

Addition with Cards (7 minutes)

Materials: (S) 1 pack of numeral cards 0–10 per set of partners (from G1–M1–Lesson 36), counters (if needed)

Note: This review fluency strengthens students’ abilities to add within and across ten.

Students place the deck of cards face down between them. Each partner flips over two cards and adds their cards together. The partner with the greatest total keeps the cards played by both players that round. (E.g., Player A draws 4 and 5, and gives the total, 9. Player B draws 9 and 4, and gives the total, 13. Since $9 < 13$, Player B keeps the cards.) If the sums are equal, the cards are set aside and the winner of the next round keeps the cards from both rounds. The player with the most cards at the end of the game wins.

Speed Writing by Twos (3 minutes)

Materials: (S) Personal white boards, timer

Note: This fluency activity provides students practice with writing numbers while reinforcing adding 2.

Time students as they count by twos on their boards from 0 to 40 as fast as they can. Students stand and

hold up their boards when they get to 40. If their counting sequence is correct, say, “Erase and count again!” To add excitement to the game, give the class a point each time a student gets to 40 and see how many points the class can earn in two minutes. Record the points and compare the score with the last time students speed wrote by twos. Keep a record of points scored each time this activity is done to help students recognize and celebrate improvement.

Cold Call: Number Sentence Swap (3 minutes)

Note: This fluency activity reviews the grade level standard of understanding subtraction as an unknown addend and prepares students for *difference unknown* problem types in this lesson.

In Cold Call, the teacher asks a question, pauses to provide thinking time, and then randomly calls on a student or group of students to answer. This game helps motivate all students to mentally solve the problem so they will be ready if they are chosen to answer.

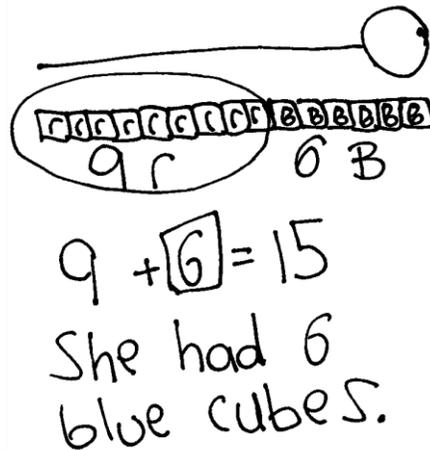
- T: 4 + what number = 5? (Pause.) Kira?
- S: (Only Kira answers.) 1.
- T: Good. So, 14 + what number = 15? (Pause to provide thinking time.) Marcus?
- S: (Only Marcus answers.)

Continue with the following suggested sequence: $5 + \square = 7$, $15 + \square = 17$, $4 + \square = 8$, $14 + \square = 18$.

Application Problem (5 minutes)

Julia’s lollipop is 15 centimeters long. She measured the lollipop with 9 red centimeter cubes and some blue centimeter cubes. How many blue centimeter cubes did she use? Remember to use the RDW process.

Note: This problem enables students to continue working with *take apart with difference unknown* problem types within the context of measurement. During the Debrief, students will compare the length of Julia’s lollipop with another item from the lesson to determine how much longer the lollipop is compared to that item.



NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

When playing games where you are randomly calling on students to answer, adjust wait time for certain students. Some may also benefit from being told the question you are going to ask them during the game so that they are not put on the spot in front of their peers unprepared.

Concept Development (32 minutes)

Materials: (T) Projector, unsharpened pencil (19 cm), new crayon (9 cm), small paper clip (3 cm), dry erase marker (12 cm), jumbo popsicle stick (15 cm), new colored pencil (17 cm), centimeter cubes
(S) Bag with centimeter cubes, bag with various classroom objects from Lesson 4, personal white board

Gather students in the meeting area.

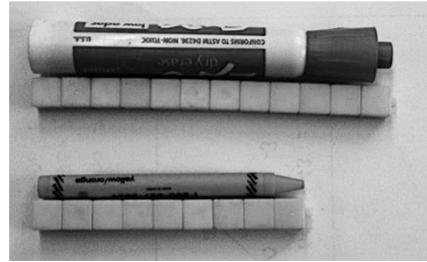
- T: (Project dry erase marker, crayon, and new colored pencil in a disorganized way.) Without measuring, can you order these three objects from shortest to longest?
- S: It's hard to tell which is longer or shorter. → They seem too similar. We couldn't tell for sure. → Let's straighten them out and line up the endpoints. → We should use our centimeter cubes to be sure.
- T: (Align the endpoints of each object, keeping the order.) Now can you order the objects from shortest to longest? Share your thoughts with your partner.
- S: (Discuss.) The objects from shortest to longest are the crayon, the dry erase marker, and the colored pencil.
- T: (Adjust the order as stated by students.) Yes, that's correct!
- T: What can we do to describe their length more precisely? How can we tell how long each item is?
- S: We can measure them!
- T: Take these items out of your bag and let's measure each item using centimeter cubes. Write down how long each item is on your personal white board.
- S: (Measure items and record lengths.)
- T: What is the length of each item?
- S: (Share measurements. Record the length next to each object.)
- T: (Touch each object while describing its length.) The colored pencil, which is 17 centimeters, is longer than the dry erase marker, which is 12 centimeters. The dry erase marker is longer than the crayon, which is only 9 centimeters. What can you say about the colored pencil compared to the crayon?
- S: The colored pencil is longer than the crayon!
- T: Look at the measurements under each object in order from shortest to longest. What do you notice? Talk with your partner. (Circulate and listen.)
- S: (Discuss.) The numbers get larger. → The measurements are larger.
- T: Let's compare the number of cubes we used to measure the marker and the crayon more closely. (Align the two objects' endpoints, and use centimeter cubes to show their length, as shown below.) Remind me, which object is longer?



NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

When students turn and talk with a partner they are hearing different ways their peers are thinking about measurement. Hearing others talk about measurement more than once will help your English language learner students understand and acquire language around this topic.

- S: The marker.
- T: How many centimeter cubes did you use to measure the marker?
- S: 12 cubes.
- T: How many centimeter cubes did you use to measure the crayon?
- S: 9 cubes.
- T: How many more cubes did you need to use to measure the marker compared to the crayon? If you need to, put your rows of cubes right next to each other, so you can see the extra cubes you used more easily.
- S: (Adjust rows of cubes as necessary to compare.) Three more centimeter cubes.
- T: How did you know? Talk with your partner about your thinking. Think about the number sentence that would match what you did.
- S: I lined them up and counted on the extras. Ninnnne, 10, 11, 12. That's 3 more cubes. → I thought, "9 plus the mystery number gives me 12." Then from 9, I counted on to get to 12. → I took away 9 from 12 and got 3.
- T: (Elicit and write number sentence corresponding to each student response.) You are right! Let's try some more.



Repeat the process with a new pencil, a paper clip, and a popsicle stick. After comparing the length of two rows of cubes for two of the objects and identifying the difference, encourage students to write the number sentences and the number statement on their personal white boards.

Note: Comparing centimeter cubes is a natural opportunity to concretely experience the compare with *difference unknown* problem type. Lesson 9 will be dedicated to focusing attention to this objective. Make note of the particular challenges students may be facing and use these specific examples to help shape the concept development work during Lesson 9.

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 solve these problems using the RDW approach used for Application Problems.

Lesson 6 1•3

Name Maria Date _____

1. Order the bugs from longest to shortest by writing the animal names on the lines. Use centimeter cubes to check your answer. Write the length of each bug in the space below the pictures.

The bugs from longest to shortest are:

<u>caterpillar</u>	<u>fly</u>	<u>bee</u>
		
<u>5</u> centimeters	<u>2</u> centimeters	<u>4</u> centimeters

2. Order the objects below from shortest (1) to longest (3) by writing the number next to the object name. Use your centimeter cubes to check your answer and complete the sentences. Frame.

The noise maker: <u>3</u>		
The balloon: <u>1</u>		
The present: <u>2</u>		

The present is about 5 centimeters long.
 The noise maker is about 8 centimeters long.
 The balloon is about 4 centimeters long.
 The noise maker is about 3 centimeters longer than the present.

COMMON CORE Lesson 6: Order, measure, and compare the length of objects before and after measuring with centimeter cubes, solving compare with difference unknown word problems. engage^{ny} 3.B.6
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Student Debrief (10 minutes)

Lesson Objective: Order, measure, and compare the length of objects before and after measuring with centimeter cubes, solving *compare with difference unknown* word problems.

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.

You may choose to use any combination of the questions below to lead the discussion.

- What did we do to figure out precisely how much longer or shorter one object was than another today?
- Can you think of a time when it would be helpful or important to say that something is longer by an exact amount rather than just saying it is longer or shorter?
- Turn and talk to your partner about how you solved Problem 3. How are your strategies similar and/or different?
- How was solving Problem 5 different from solving Problems 3 and 4? Explain your thinking.
- Look at your Application Problem. How much longer is Julia’s lollipop than the new crayon? Talk with a partner to discuss how you know.

Be sure to send the bag of cubes home for students to complete their homework.

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name _____

Date _____

1. Order the bugs from longest to shortest by writing the animal names on the lines. Use centimeter cubes to check your answer. Write the length of each bug in the space below the pictures.

The bugs from longest to shortest are

Fly



_____ centimeters

Caterpillar



_____ centimeters

Bee



_____ centimeters

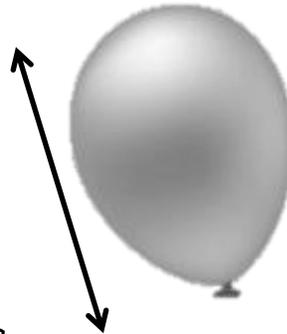
2. Order the objects below from shortest (1) to longest (3) by writing the number next to the object name. Use your centimeter cubes to check your answer and complete the sentences.



The noise maker: _____

The balloon: _____

The present: _____



The present is about _____ centimeters long.

The noise maker is about _____ centimeters long.

The balloon is about _____ centimeters long.

The noise maker is about _____ centimeters longer than the present.



Name _____

Date _____

Read the measurements of the tool pictures.

The wrench is 8 centimeters long.



The screwdriver is 12 centimeters long.



The hammer is 9 centimeters long.



Order the pictures of the tools from shortest to longest.

Diana bought her dad a new tool that was 6 centimeters longer than the screwdriver. Use your centimeter cubes to find out how long the new tool is. Draw a picture and complete the statement.

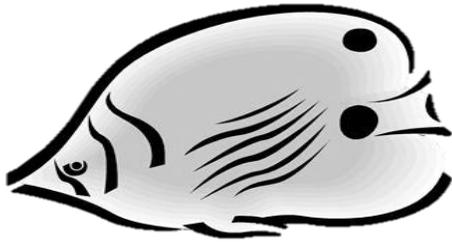
The new tool is _____ centimeters long.

Name _____

Date _____

Natasha’s teacher wants her to put the fish in order from longest to shortest. Measure each fish with the centimeter cubes that your teacher gave you. Then, use the letters to put the fish in order from longest to shortest.

A



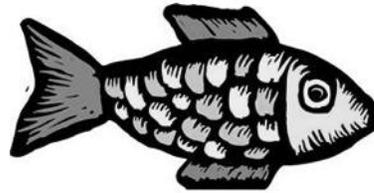
_____ centimeters.

B



_____ centimeters.

D



_____ centimeters

C



_____ centimeters.

E



_____ centimeters.

Order Fish A, B, and C from longest to shortest.
