

# LESSON 13

## Objective

Subtract numbers using comparison subtraction.

## Common Core State Standards

- **1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g.,  $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$ ); decomposing a number leading to a ten (e.g.,  $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$ ); using the relationship between addition and subtraction (e.g., knowing that  $8 + 4 = 12$ , one knows  $12 - 8 = 4$ ); and creating equivalent but easier or known sums (e.g., adding  $6 + 7$  by creating the known equivalent  $6 + 6 + 1 = 12 + 1 = 13$ ).

## Operations and Algebraic Thinking

# Comparison Subtraction

Comparison subtraction relies on children being able to compare the relative values of two numbers. Difficulties with comparison subtraction often revolve around confusion about whether to add or subtract. Children should be aware that words such as *difference*, *less than*, *minus*, or *decreased by* often indicate that they should subtract to find an answer. Using manipulatives to show the difference between two values can help children to develop fluency with comparison subtraction, which will translate to increased ability to order fractions, decimals, and integers in the higher grades.

**Try It!** Perform the Try It! activity on the next page.

## Talk About It

Discuss the Try It! activity.

- Ask children to give examples of situations in which they might need to use comparison subtraction.
- **Ask:** *What are two ways that you can find the difference between 9 and 5?* Elicit from children that they can use counting on, or they could assign a unit of one to a white Cuisenaire® Rod and count how many white rods equal a purple rod.
- **Ask:** *What rod shows the difference between 9 and 5? What number does it represent?*

## Solve It

With children, reread the problem. Ask children to draw a picture of the situation and show the number of books that makes up the difference between 9 books and 5 books.

## More Ideas

For other ways to teach about comparison subtraction—

- Have children use Two-Color Counters to model and solve subtraction problems. For example, **say:** *Leslie has 8 crayons. She also has 3 markers.* **Ask:** *How many more crayons does Leslie have than markers?* **Say:** *Use counters to find and show the answer.*
- Have children use Snap Cubes® to build single-color trains of different lengths and then compare the lengths to find the difference.

## Formative Assessment

Have children try the following problem.

*The Jones family has 5 cats. The Martinez family has 2 cats. How many more cats does the Jones family have? Circle the answer.*

- A. 3    B. 7    C. 5

## Try It! 30 minutes | Pairs

Here is a problem about comparison subtraction.

*Franklin Elementary School had a reading contest. Tonya read 9 books. Ron read 5 books. How many more books did Tonya read than Ron?*

Introduce the problem. Then have children do the activity to solve the problem. Explain that comparison subtraction is a way to show “how many more” or “how many less.” Give each pair a set of Cuisenaire® Rods and a Centimeter Grid (BLM 1). **Say:** *Suppose that a white rod stands for 1 unit. Then each other rod stands for a different number of units.*

### Materials

- Cuisenaire® Rods (5 white and 1 of every other color per pair)
- Centimeter Grid (BLM 1; 1 per pair)
- crayons (several per pair)



**1.** Have children identify the rod for 9 and place it on the grid. Instruct children to represent the rod on the grid by coloring and writing its value.



**2.** Have children identify the rod for 5 and place it underneath their representation of 9. Ask children to represent its value on the grid and create a vertical number sentence,  $9 - 5$ .



**3.** Have children work together to build the difference between the numbers of units. Have them use white rods or combinations of other colors. **Ask:** *Which rod will make the yellow rod as long as the blue rod? Which rod shows the difference between the numbers of units? How can you find out how many more 9 is than 5?*

### Look Out!

If children have trouble figuring out how to set up a comparison, remind them that they need to show each value with a rod in order to compare the values. Ask them how many books Tonya read and how many books Ron read. Also, be aware that children might use different strategies to build the difference using several rods.



Use Cuisenaire Rods. Build the subtraction shown.  
Write the number sentence.

(Check students' work.)

1. 

$$\underline{\quad 9 \quad} - \underline{\quad 3 \quad} = \underline{\quad 6 \quad}$$

2. 

$$\underline{\quad 8 \quad} - \underline{\quad 5 \quad} = \underline{\quad 3 \quad}$$

Use Cuisenaire Rods. Build the subtraction shown.  
Draw the model. Complete the number sentence.

3.  $10 - 3 = \underline{\quad 7 \quad}$

4.  $8 - 2 = \underline{\quad 6 \quad}$

5.  $7 - 5 = \underline{\quad 2 \quad}$



## Answer Key

**Challenge!** The answer to a subtraction problem and the number being subtracted should add to what number?

Challenge: (Sample) The first number in the subtraction problem.

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**Use Cuisenaire Rods. Build the subtraction shown.  
Write the number sentence.**

1. 

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2. 

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

**Use Cuisenaire Rods. Build the subtraction shown.  
Draw the model. Complete the number sentence.**

3.  $10 - 3 = \underline{\hspace{2cm}}$

4.  $8 - 2 = \underline{\hspace{2cm}}$

5.  $7 - 5 = \underline{\hspace{2cm}}$

Name \_\_\_\_\_

**Challenge!** The answer to a subtraction problem and the number being subtracted should add to what number?

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Name \_\_\_\_\_

