

LESSON 5

Objective

Add and subtract decimals involving tenths and hundredths.

Common Core State Standards

- **5.NBT.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Number and Operations in Base Ten

Add and Subtract Decimals II

Students will deepen their understanding of the base ten system as they regroup hundredths, tenths, and ones when they add and subtract decimals. Developing number sense helps students grasp the concept of addition and subtraction and leads to an understanding that these two operations are inversely related. This prepares students for multiplying and dividing decimals.

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

Talk About It

Discuss the Try It! activity.

- **Ask:** Why do you count the hundredths first?
- **Ask:** When adding, why do you need to regroup hundredths? Tenths?
- **Ask:** When subtracting hundredths, how do you regroup tenths? How do you regroup ones to subtract tenths?
- **Ask:** How can you use inverse operations to check your solutions?

Solve It

Reread the problem with students. Before students begin to solve the problems, make sure they understand why they are adding or subtracting. Encourage them to check that they have regrouped correctly.

More Ideas

For other ways to teach about adding and subtracting decimals—

- Have students use Fraction Tower® Equivalency Cubes or Snap Cubes® to add and subtract decimals to tenths. When using the Snap Cubes, tell students that each cube represents one tenth and each set of 10 cubes snapped together represents 1 whole. Provide various scenarios using decimals up to 0.9 and have students add and subtract decimals with regrouping. Have students snap together 10 Fraction Tower Equivalency Cubes or Snap Cubes when regrouping 10 tenths as 1 whole to reinforce the relationship between tenths and ones.
- Have students use Deluxe Rainbow Fraction® Circles and the decimal ring to add and subtract numbers to tenths and hundredths.

Formative Assessment

Have students try the following problem.

Ms. Jenks bought 1.75 pounds of ham and 0.8 pound of turkey from the deli. How many more pounds of ham than turkey did she buy?

- A. 2.55 pounds B. 1.83 pounds C. 0.95 pound D. 1.67 pounds

Try It! 25 minutes | Pairs

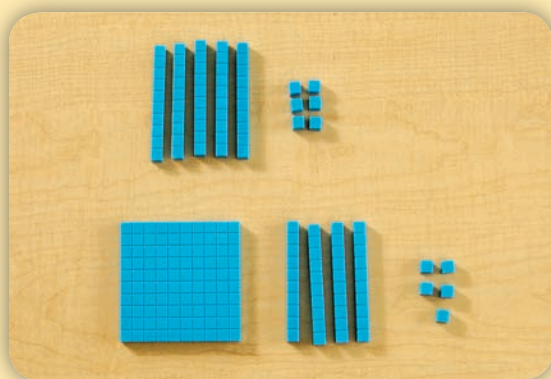
Here is a problem about adding and subtracting decimals.

Joaquin hiked 0.56 mile in the morning and 1.45 miles in the afternoon. Joaquin wants to record in his journal how many miles he hiked altogether and how much farther he hiked in the afternoon. What distances should he put in his journal?

Introduce the problem. Then have students do the activity to solve the problem. Distribute Base Ten Blocks to students. Explain to students that a flat equals $\frac{100}{100}$ or 1. Have students determine the value of a rod and of a unit.

Materials

- Base Ten Blocks (2 flats, 15 rods, and 25 units per pair)



1. Say: You want to add 0.56 and 1.45 to find the total distance Joaquin hiked. Have students model 0.56 and 1.45 with the blocks.



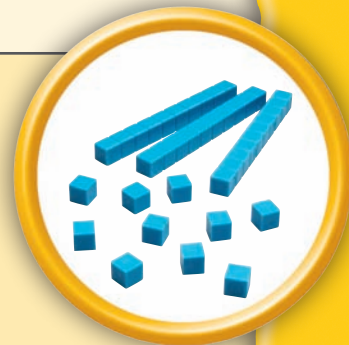
2. Say: Count the hundredths and regroup. Then count the tenths and regroup. After students have counted and regrouped, they should show 2 flats and 1 unit. **Ask:** How many miles did Joaquin hike?



3. Ask: Now you want to know how much farther Joaquin hiked in the afternoon than in the morning. What operation do you use? Write $1.45 - 0.56$ on the board, and have students model the subtraction. Help them regroup when subtracting hundredths and tenths.

Look Out!

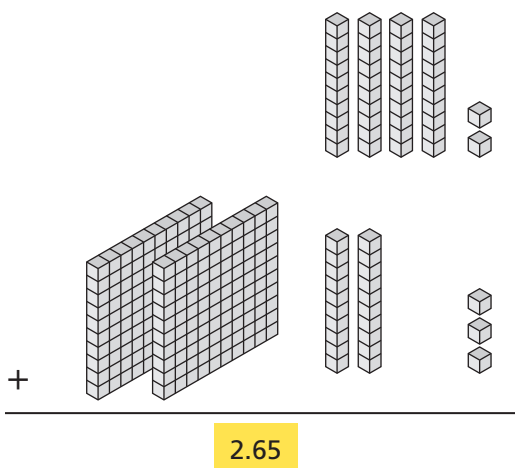
Some students might express the solution to the addition problem as 2.1 rather than 2.01. Remind students that 1 unit represents $\frac{1}{100}$ and is expressed 0.01 as a decimal. Model the differences between 2.0 and 2.1 using Base Ten Blocks. Show that 2.0 is the same as 1 whole and 10 tenths and that 2.1 is equivalent to 1 whole and 11 tenths. This will reinforce the importance of placing a zero in the tenths place when regrouping 10 tenths as 1 whole.



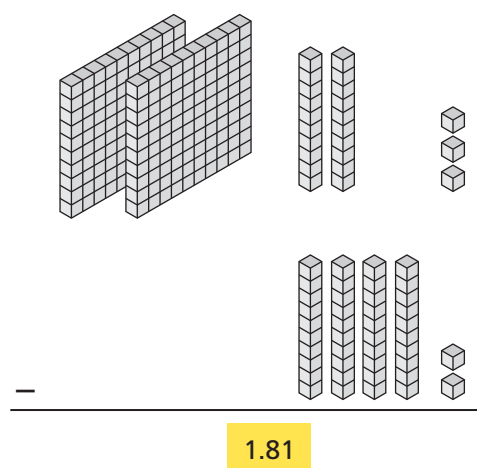
Use Base Ten Blocks to model each sum or difference. Let the flat equal 1 whole. Write and complete the number sentence for each model.

(Check students' work.)

1.



2.



Using Base Ten Blocks, model each sum or difference. Sketch the model. Write the sum or difference.

(Check students' models.)

3. $1.78 + 2.53$

4. $3.16 - 0.86$

4.31

2.3

Find each sum or difference.

5. $0.16 + 2.27$

6. $4.12 - 1.24$

2.43

2.88

7. $1.94 + 2.08$

8. $2.56 - 0.76$

4.02

1.8

Answer Key

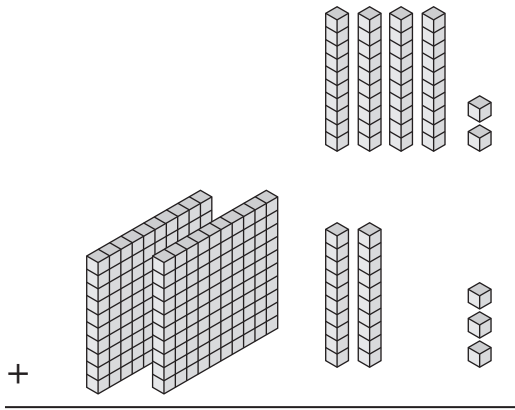
Challenge! Describe any exchanges you made with the Base Ten Blocks to find the difference for Problem 8. Draw a picture to help.

Challenge: (Sample) I had to trade one flat for 10 rods so that I could subtract the 7 rods. That left me with 8 rods and one flat.

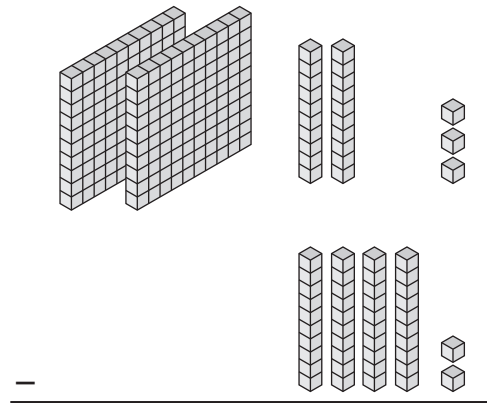
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Name _____

Challenge! Describe any exchanges you made with the Base Ten Blocks to find the difference for Problem 8. Draw a picture to help.

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