



## 2: How Much?



### OBJECTIVE:

Students will solve story problems that involve addition, subtraction, multiplication, and division with decimals. Students will represent parts of a dollar as a fraction, a decimal, and a percentage.



### MATERIALS:

- Copies of the “How Much?” work pages (pages 8 and 9)
- Overhead of problem(s) to be solved as a group
- Paper and pencil
- Math manipulatives, such as pattern blocks or fraction bars (optional)



### PREPARATIONS:

- Copy “How Much?” work pages (pages 8 and 9) front to back.
- Prepare overhead transparency with story problem(s).



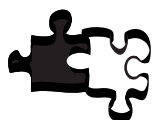
### GROUPING:

- Whole group/small groups or partners



### CLASS TIME:

- 2 class periods



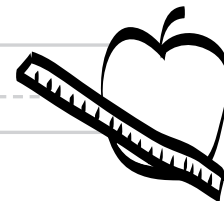
### CONNECTIONS:

- Math
- Language Arts



### TERMS and CONCEPTS:

- Strategies
- Fractions
- Decimals
- Percentages



## Problem Solving with Decimals, Fractions, and Percentages



### STEPS:

1. Begin with a quick review of decimals, fractions, and percentages.
2. Hand out the “How Much?” work page (pages 8 and 9). Place problem(s) to be solved as a whole group on the overhead. Read the first problem together. Discuss some different strategies one might use to solve the problem. (Allowing students to think about their own strategies for solving the problems will encourage them to think independently and critically about numbers and will serve to improve their understanding of operations and number sense.)
3. Use one of the suggested strategies for the first problem and work it through on the overhead so that all students can see your work. Discuss whether the answer is correct and how the strategy worked.
4. Ask students to work through the other three story problems on their own or in small groups. Once students have finished the problems, reconvene and go over the strategies used and the solutions. *NOTE: Depending on the skill level of the students, the teacher may wish to work all problems as a group.* Discuss how many different strategies for solving problems can produce accurate answers. Ask students to think about which of the strategies they saw were the most efficient and effective in getting the correct answers.
5. Demonstrate how to convert amounts into fractions, percentages, and decimals. For practice, ask students to complete question 5 on the “How Much?” (pages 8 and 9) work page on their own or in small groups.



### ANSWER KEY: *(Word Problems Only)*

- |                               |                             |
|-------------------------------|-----------------------------|
| 1. \$16.50                    | 2. A. \$167.91 B. No C. 59¢ |
| 3. A. \$3.75 B. 35 C. \$12.50 | 4. \$62.80                  |



### ENRICHMENT/EXTENSIONS:

*Have students write their own story problems to challenge one another.*



# How Much?—Part 1

## DIRECTIONS:

Solve the story problems below. Explain how you solved each problem.

- 1.** Your class is taking a field trip to the United States Mint. The cost is \$150.00 for the bus, \$100.00 for the group photo, and \$80.00 for lunch at the pizza parlor. Twenty kids are going. How much will it cost per person?



Answer:



- 2. PART A:** Joe has been collecting change all year. He has decided to buy himself a new bike and has emptied his piggy bank. When he pours the money out, he finds 340 quarters, 611 dimes, 217 nickels, 896 cents, and 2 Golden Dollar coins. How much money does he have in all?

Answer:

**PART B:** The bike he wants costs \$168.50. Does he have enough to buy it?  YES  NO

**PART C:** Will there be extra? \_\_\_\_\_ If YES, how much? \_\_\_\_\_

If not, how much more does Joe need to save? \_\_\_\_\_

- 3. PART A:** Sarah is collecting the new quarters. She has each of the 15 quarters released from 1999-2001. How much money is that in all?

Answer:

**PART B:** How many quarters need to be released before all 50 states are represented?

Answer:

**PART C:** Once Sarah has all the new quarters, what will her collection be worth?

Answer:





## How Much?—Part 2

4. Your family is taking a trip to visit each of the states for which quarters were released in 2001. From Vermont, going south to Kentucky is approximately 1,000 miles.



Your family car has a 10 gallon gas tank and gasoline costs \$1.57 per gallon. If your car gets 25 miles per gallon, how much money will you need for gas?

Answer:

5. For each amount below, rewrite as a fraction, a percentage, and a decimal.

	<b>20¢ out of \$1.00</b>	<b>\$2.50 out of \$10.00</b>	<b>\$5.00 out of \$30.00</b>	<b>\$40.00 out of \$100.00</b>
<b>Fraction</b>				
<b>Percent</b>				
<b>Decimal</b>				