How Much?

Subject: Math
Grade Level: 4th - 6th grades
Summary: 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.

BIG QUESTION

What strategies can be used to solve word problems?

TIMING

91-120 minutes

LEARNING OBJECTIVES

- 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 worksheets (end of this document)
- Problem(s) to be solved as a group, projected or on handouts
- Paper and pencil
- Math manipulatives, such as pattern blocks or fraction bars (optional)

PROCEDURE

1. Begin with a quick review of decimals, fractions, and percentages.
2. Hand out the "How Much?" worksheet. Display or hand out problem(s) to be solved as a whole group. 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. 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?" work page on their own or in small groups.

Assess

Use the worksheets and class participation to assess whether the students have met the lesson objectives.

STANDARDS

Common Core Standards

CCSS.MATH.CONTENT.4.MD.A.1
Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

CCSS.MATH.CONTENT.4.MD.A.2
Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

How Much? – Part 1 Worksheet

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 $250.00 for the bus, $100.00 for group photo, and $180.00 for lunch. Twenty kids are going. How much is the 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, 611dimes, 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? Circle one.

YES NO

PART C: Will there be any money left over? _____ If so, how much? _____

If not, how much more money does Joe need to purchase the bike? _____

3. Sarah is collecting the American Women Quarters. She has each of the 15 quarters released from 2022-2025. How much money is that in all?

_____

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: _____

How Much? – Part 2 Worksheet

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

	20 cents out of $1.00	**$2.50 out of $10.00**	**$5.00 out of $30.00**	**$40.00 out of $100.00**
Fraction				
Percent				
Decimal				