

Math with Money

Lesson Plan

Grade Level: K-2

Curriculum Focus: Problem Solving

Lesson Duration: Two class periods

Student Objectives

- Discuss how to solve word problems involving money.
- Work as a class to solve word problems focusing on addition, subtraction, multiplication, and simple fractions.
- Work with a partner to make up their own word problems.

Materials

- Discovery School video on *unitedstreaming: Math: Money & Time*
Search for this video by using the video title (or a portion of it) as the keyword.

Selected clips that support this lesson plan:

- Segment 1: Money
- Overhead projector with transparencies and pens

Procedures

1. Begin the lesson by asking students to think about how money is used in their daily lives such as how much money they earn for allowance or receive as gifts, or how much money they need to save to buy a new toy
2. Explain to students that they use math every time they figure out how much time or money they have, spend, or need. During this lesson, students will be working together to apply the math skills they already know (addition, subtraction, multiplication, and fractions) to solve real-life problems about money. They will begin by working as a class to solve word problems about money and time. After practicing, students will work with partners to apply the same writing and math skills as they prepare their own word problems involving money.
3. Write the following problem on the board or on an overhead transparency:

Your teacher told you to buy a notebook, a ruler, a pencil, and an eraser for math class. The notebook costs \$3.00, the ruler \$1.50, the pencil \$.20, and the eraser \$.40. What is the total amount of money you need to buy these items?

Ask students how they would solve this problem. First, discuss which operation they should use. Point out that the words “the total amount” usually indicate that addition is called for. Go through the following steps with your students to solve this problem:

- To find out how much money you need, add up the following:

$$\begin{array}{r} \$3.00 \\ \$1.50 \\ \$0.20 \\ + \$0.40 \\ \hline \\ \$5.10 \end{array}$$

- You would need to take \$5.10 to the store to have enough money to buy the supplies.
- Ask students how they would solve the problem if the teacher asked them to get three pencils and three erasers. Explain that when they hear the word each, they know that they will likely have to multiply.
- To find out how much money you would need now, begin by multiplying:

$$\begin{array}{r} \$0.20 \times 3 = \$0.60 \\ \$0.40 \times 3 = \$1.20 \end{array}$$

- Then add those totals to the other expenses for single items:

$$\begin{array}{r} \$3.00 \\ \$1.50 \\ \$0.60 \\ + \$1.20 \\ \hline \\ \$6.30 \end{array}$$

4. Ask students if they understand how they use math all the time. Have them pick partners and have each pair make up one word problem focusing on money. The problems should give students practice working on addition, subtraction, multiplication, or fractions. Have students write their problems on a piece of paper or on a transparency so they can present to the class. After they have written the problems, have them prepare their own solution in the form of an equation or equations, as well as a written explanation of the steps they used to solve the problem.
5. Have each pair present its problem to the class. Have the presenting pair lead a discussion about the steps needed to solve the problem. Then they can reveal their own solutions.

Discussion Questions

1. Which words in a word problem usually mean that addition is the correct operation to use? Which words usually indicate that subtraction should be used?
2. Give two examples of problems about money or time that came up in your everyday life. Were you able to solve them?
3. Take one of the problems presented by your classmates and add a sentence to it that requires using another mathematical operation to find the solution. (E.g. how much change they would get back for their purchase, if they gave the cashier a \$20 bill for a smaller amount.)

Assessment

Use the following three-point rubric to evaluate students' work during this lesson.

- 3 points: Students were very attentive during class; actively participated in class discussions; and applied what they learned to write accurate, interesting word problems.
- 2 points: Students were somewhat attentive during class; showed some involvement during class discussions; and applied what they learned to write satisfactory word problems.
- 1 point: Students were not attentive during class; showed little involvement during class discussions; and had difficulty applying what they learned to write their own word problems.

Vocabulary

decimal

Definition: A fraction (as $.25 = 25/100$ or $.025 = 25/1000$) or mixed number (as $3.025 = 3\frac{25}{1000}$) in which the denominator is a power of 10 usually expressed by use of the decimal point.

Context: We use decimals when we count money.

equation

Definition: A mathematical statement of equality.

Context: Addition, subtraction, multiplication and division can be used in solving equations.

fraction

Definition: A numerical representation of a portion of a whole.

Context: One-fourth ($1/4$) and one-half ($1/2$) are fractions.

operation

Definition: The practical application of principles or processes; in mathematics, this refers to addition, subtraction, multiplication, or division.

Context: When solving word problems, the first step in finding the answer is determining which operation to use.

Academic Standards

Mid-continent Research for Education and Learning (McREL)

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit <http://www.mcrel.org/>.

This lesson plan addresses the following national standards:

- Understands and applies basic and advanced properties of the concepts of numbers
- Uses basic and advanced procedures while performing the processes of computation

The National Council of Teachers of Mathematics (NCTM)

NCTM has developed national guidelines for teaching mathematics. To view the standards online, go to <http://standards.nctm.org/>.

This lesson plan addresses the following math standards:

- Numbers and Operations
 - Problem Solving
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Support Materials

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the [Discoveryschool.com](http://www.discoveryschool.com) Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>