

Fractions, Decimals, and Percents with Money

STRAND: Number and Number Sense

STRAND CONCEPT: Rational Number Equivalencies

SOL 6.2a

Remediation Plan Summary

Students use the money to help them conceptualize the value of equivalent rational numbers.

Common Errors and Misconceptions

- Some students write the decimal form of a fraction using the numerator as the first digit and the denominator as the second digit.
- Some students do not have a conceptual understanding of decimals and percents and how they relate to part out of 100. They simply try to do the “trick” with moving the decimal points without the conceptual understanding.

Materials

Play money, Newspaper ads, articles,

Introductory Activity

Display the following phrases:

- Three quarters of a dollar
- Half off
- Five percent tax
- Eight and one tenth of a second

Ask students to explain what each phrase means and how they would write each one using numbers.

Plan for Instruction

- Divide students into groups of four each. Give each student a set of play money—dollar bills, quarters, dimes, nickels, and pennies. Tell students to consider a dollar bill as the number 100, and ask them to create four separate piles of coins, each of which contains like coins whose total amount equals one dollar, i.e., 4 quarters, 10 dimes, 20 nickels, or 100 pennies.
- Explain that the students are going to build on their knowledge of currency values to evaluate relationships among fractions, decimals, and percents. Have the groups take one quarter and write its value in fraction form ($\frac{1}{4}$), in decimal form (0.25), and as a percentage of a dollar (25%). Point out that they have just written the three equivalent representations of a quarter. Have the groups follow the same procedure for 2 quarters ($\frac{2}{4}$ or $\frac{1}{2}$ simplified, 0.50, 50%) and 3 quarters ($\frac{3}{4}$, 0.75, 75%).

AR Remediation Plan – Rational Number Equivalencies

- Have students work in groups to determine the fraction, decimal, and percent values of a penny ($\frac{1}{100}$, 0.01, 1%); a nickel ($\frac{1}{20}$, 0.05, 5%); a dime ($\frac{1}{10}$, 0.10, 10%). Compare student responses on the board, and discuss any discrepancies.
- Ask students to write the fraction, decimal, and percent values of 3 pennies, 3 nickels, and 3 dimes. Finally, have them write the values of 12 pennies, 12 nickels, and 12 dimes. Compare student responses on the board, and discuss any discrepancies. Ask students why 12 dimes is greater than 100%.

Pulling It All Together (Reflection).

Give students newspaper articles or ads containing fractions, decimals, or percents. Have them read the article or ad and convert any rational number they see to its other forms. For example, if an ad reads “50% Off.,” the student will rewrite it to read “ $\frac{1}{2}$ off” and “0.5 off”