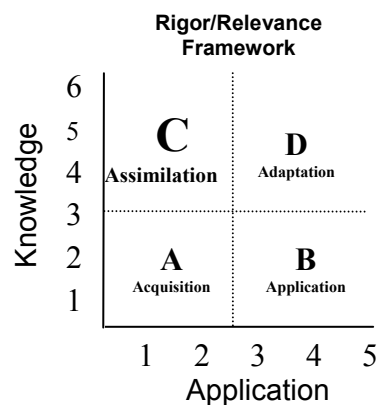




Gold Seal Lesson

MATH RIDDLES



Subject

MATHEMATICS

Grades K-4

Instructional Focus

Number Operations and Concepts: Students use number, number sense, and number relationships in a problem-solving situation. Students communicate the reasoning used in solving these problems.

Algebraic Concepts and Relationships: Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation. Students evaluate and communicate the reasoning used in solving these problems.

Problem Solving and Mathematical Reasoning: Students apply a variety of problem-solving strategies to investigate and solve problems from across the curriculum as well as from practical applications.

Writing: Students write for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

Listening: Students listen for a variety of purposes appropriate to the grade level.

Performance Task

This lesson is a good way to review math concepts and build students' problem-solving skills in math as well as their language arts skills.

1. Tell the students that they are going to solve and write riddles today in math class.
2. Give students a riddle or two so that they will have an understanding of what you mean by "riddle." For some examples, see Math Riddles (attached). Work with the whole class to solve a few riddles that you create and to write a class riddle.
3. Have students work in pairs to solve the riddles on the Math Riddles handout and then write three to five of their own math riddles.
4. Have the pairs of students exchange riddle sheets and solve each other's riddles. Allow students to exchange their riddles with other pairs as time permits.

Scoring Guide

3 BEYOND

Analyzes and readily understands the task.
Develops an efficient and workable strategy.
Shows explicit evidence of carrying out the strategy.
Synthesizes and generalizes the conclusion.
Solves and writes riddles as directed.

2 AT LEVEL

Understands the task.
Develops a workable strategy.
Shows some evidence of carrying out the strategy but not always clear.
Connects and applies the answer.
Solves and writes most of the required number of riddles.

1 NOT YET AT

Partially understands the task.
Uses appropriate strategy some of the time.
Shows little evidence of a plan – not clear.
Partially connects and applies answer.
Solves or writes some of the required number of riddles.

0 A LONG WAY TO GO

Totally misunderstands the task.
Uses inappropriate, unworkable strategy.
Shows no evidence of carrying out a plan.
Provides no connections of answer.
Does not solve or write any riddles.
Leaves blank.

Essential Skills

- Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions. (m1)
- Understand basic algebraic properties (i.e., commutative: $ab = ba$; associative: $ab(c) = a(bc)$; and distributive: $a(b+c) = (ab) + (ac)$). (m3)
- Understand the use of variables in expressions such as $4x$, $x+2$, $2x-1$, solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables. (m7)
- Understand the correct order of operations for performing algebraic computations. (m8)
- Follow oral or written directions. (ela4)
- Use brainstorming, role playing, and standard problem solving strategies to define a problem and suggest solutions. (ela19)

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MATH RIDDLES

1. On a number line, I fall between 10 and 14. I am equal to $11 + 1$.
What number am I?
2. The sum of my numerator and denominator is 12. I am equal to $1/3$.
What fraction am I?
3. I am equal to the sum of $12 + 4 - 8$. I am also one of the numbers listed. What number am I?
4. The double of my number is equal to $1 + 5$. What number am I?
5. If you divide me by 4, each of my digits is equal to $3 + 2$. What number am I?