

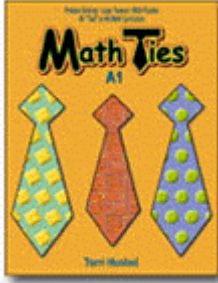
PreK-12 * All Abilities

Product Profile



**Critical
Thinking
Books &
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**Reading * Writing
Math * Science
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Math Ties A1 Problem Solving, Logic Teasers, and Math Puzzles All Tied to the Math Curriculum

Paperback Book
\$16.99

Item#: 04101BBP

Type: Student Content w/ Instruction/Answer Guide

Media: Paperback Book

License: Reproducible

Grade(s): 4-5

Subject: Mathematics

ISBN: 0-89455-670-3

Activities: 74

Pages: 96

Written to NCTM Standards!

Description & Features

Math Ties helps students develop proficient use of problem-solving strategies

- connections between problems, topics, and disciplines
- confidence and independence when learning daily math and taking math assessments
- readiness for algebraic thinking

Methods

Students are presented with a variety of problem-solving strategies followed by activities grouped in curriculum themes. Key features include step-by-step modeling, practicing the same strategy with different problem types, writing in math, and using charts and graphs.

Teaching Support

Includes guidelines, concept and problem-solving strategy matrices, portfolios, and answers.

Table of Contents/Skills

Introduction

What is problem solving?

Choosing the problems

How to get started

To grade or not to grade

The teacher's role during problem solving

Classroom discipline

What to do with the problems that are solved

Above all, praise and praise

Group Rules for Problem Solving

Problem-Solving Strategies

Graphic Organizer

Steps to Problem Solving

Student Worksheet: Problem-Solving Interpretation

Student Worksheet: Analysis of Solutions

Problems

Logic Problems

Whole Numbers

Number Theory

Fractions

Decimals

Geometry

Ratio, Proportion, and Percent

Probability

Sets

Pre-Algebra

More Chart and Popular Problems

Answers

Appendix A--A problem-Solving Portfolio

Appendix B--Math Myths

Appendix C--Matrix of Problem-Solving Concepts

Appendix D--Matrix of Problem-Solving Strategies

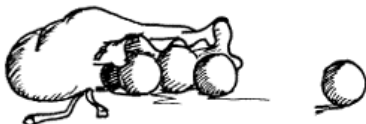
NUMBER THEORY

To the teacher

**SAMPLE ONLY
DO NOT PRINT**

This section includes problems that encourage students to think of patterns and gain an appreciation for working with numbers. In The Salary Problem, The Never-ending Joke, and Going to the Beach, students often think that their last exponent result (i.e., 2^5) is the final answer; they need to add the amounts found at each stage to get the total. The Narrow Staircase is an example that illustrates the importance of adding the subtotal after each step.

Going to the Beach is based on the problem of St. Ives, which dates back to Egyptian times. It would be fun for your students to research other old problems that have been handed down over the centuries.



25

Going to the Beach

As Sarah was going to the beach, she saw a woman with two children. Each child carried two bags. Each bag had two buckets. Each bucket had two shovels. Each shovel had two shells. If they were all going to the beach, how many children, bags, buckets, shovels, and shells were going to the beach?



FRACTIONS

To the teacher

Problems in this section will help students diagram their understanding of fractions and fraction operations.

Some students think they are not allowed to cancel the numerator and the denominator of the same fraction (some don't recognize it as reducing because they usually see cross cancelling along diagonal lines when multiplying fractions). The Mystery Fraction helps to correct this problem by giving students practice in cancelling the numerator and denominator of the same fraction.

29

The Mystery Fraction

Can you find the mystery fraction that makes this product come out to 1? (A product is the result of multiplication.)

$$\frac{9}{18} \times \frac{2}{3} \times \frac{4}{8} \times \frac{7}{14} \times \boxed{\frac{\quad}{\quad}} = 1$$

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