

Grades K-3

COLOR TILE MATH

Here's a reproducible activity book filled with carefully-sequenced activities using one of your classroom's most versatile math manipulatives Color Tiles!

COLOR TILE MATH features:

- More than 50 blackline master activities
- Teaching notes with tips on how to use student journals to integrate language arts into your mathematics lessons
- Cooperative learning format
- Topics such as patterns, place value, operations, measurement, geometry, graphing, probability, and more!
- NCTM *Standards*-based instruction

These fine products are also available from Learning Resources:

LER 0203 Square Color Tiles, Set of 400

LER 0375 Laminated Hundred Boards, Set of 10

LER 0478 Overhead Color Squares, Set of 50

LER 0952 Mathlink® Cubes, Set of 500



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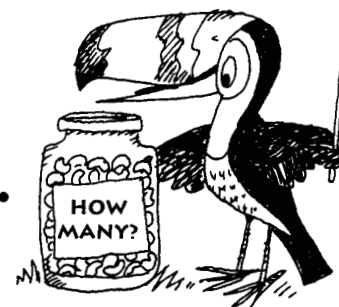
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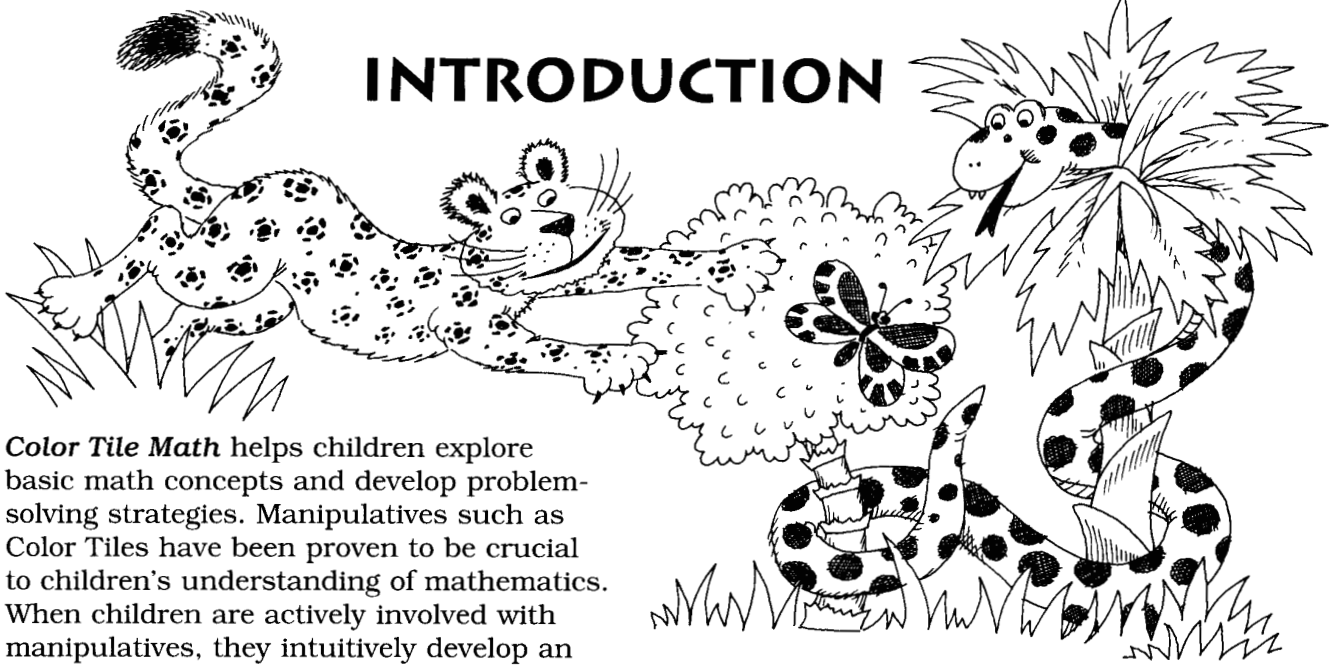
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INTRODUCTION



Color Tile Math helps children explore basic math concepts and develop problem-solving strategies. Manipulatives such as Color Tiles have been proven to be crucial to children's understanding of mathematics. When children are actively involved with manipulatives, they intuitively develop an understanding of math concepts.

The activities in this book are designed for use with your mathematics curriculum in grades K-3. Color Tiles are used with every activity. The set of **Color Tiles** (LER 203) consists of durable 1-inch plastic squares in yellow, blue, red, and green. For teachers' use, the set of **Overhead Color Squares** (LER 478) are available in $\frac{3}{4}$ -inch squares (set includes 5 each of 10 colors).

NCTM Standards

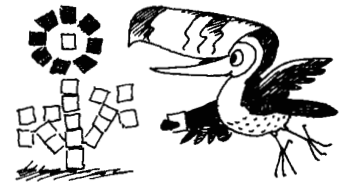
Curriculum and Evaluation Standards for School Mathematics, published by the National Council of Teachers of Mathematics (NCTM), was used as a guide in writing this book. Special attention was given to the following 12 standards:

- Math as Problem Solving
- Math as Communication
- Math as Reasoning
- Math Connections
- Estimation
- Number Sense and Numeration
- Concepts of Whole Number Operations
- Whole Number Computation
- Geometry and Spatial Sense
- Measurement
- Statistics and Probability
- Patterns and Relationships

Free Play

Introduce your children to Color Tiles by encouraging free play. Free play helps children become comfortable with the manipulatives. The free play time should precede the activities in this book. Begin free play by allowing children time to handle the tiles and play with them. However, give children some direction during free play, so they become accustomed to a structured setting. Here are some suggestions for children. Say: "Use your Color Tiles to:

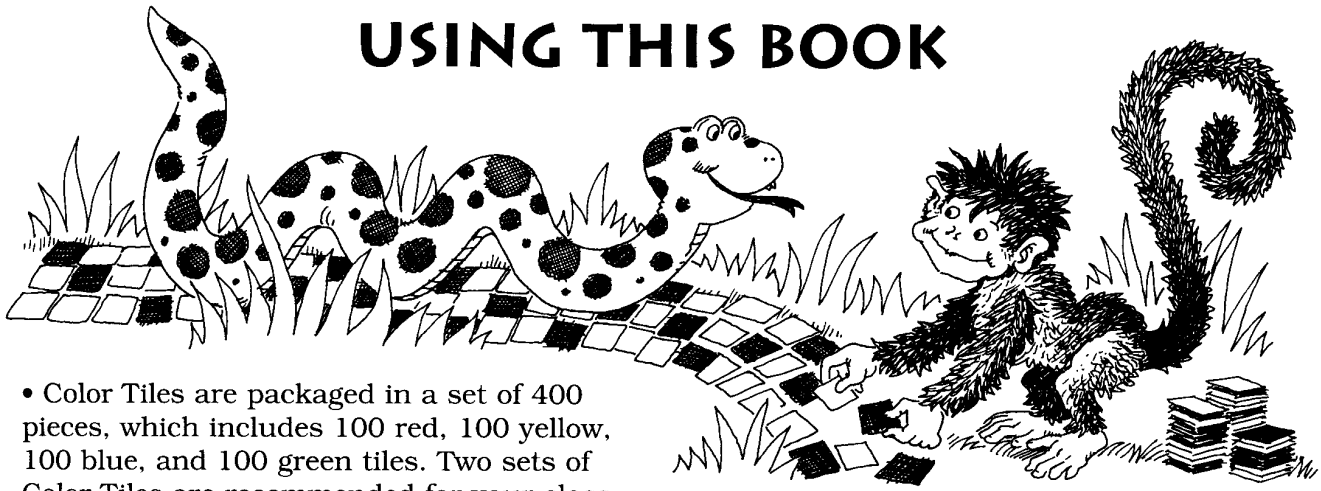
- make a design;
- write your initials;
- build a house;
- create an animal;
- show a flower."



Observe how children react to the manipulatives, how they handle the manipulatives, and how they work in groups. This informal assessment can be very helpful later on. Children in your classroom more than likely will be at different levels of cognitive development. While assessing children, observe their levels of development. This will be a good indicator of children's readiness to move on.



USING THIS BOOK



- Color Tiles are packaged in a set of 400 pieces, which includes 100 red, 100 yellow, 100 blue, and 100 green tiles. Two sets of Color Tiles are recommended for your classroom.

- An overhead projector is helpful. You also should have overhead pens in 4 colors (yellow, blue, red, and green) to match the Color Tiles, but you can substitute shading or letters if necessary.

- Overhead Color Squares are recommended for many activities. If you do not have Color Squares, you can substitute shading or use letters when necessary. Note that the Color Squares are $\frac{3}{4}$ -inch, not 1-inch squares.

Important note: Photocopy Tile Sheets at 75% when creating transparencies, if Overhead Color Squares are being used.

- Each activity consists of teaching notes and a corresponding reproducible activity page.

- When a transparency is recommended, it is noted in the Teaching Notes. These transparencies can be reproduced on acetate.

- Selected Answer Keys are found in the back of the book.

- Encourage children to be actively involved. When possible, ask children to demonstrate problems on the overhead, and call on them to answer questions.

- Cooperative learning is encouraged throughout the book. Working in groups and pairs can benefit children at different levels. Suggested group size is 4.

- Activities are sequenced developmentally under 3 levels: concrete, pictorial, and symbolic. Concrete activities give children hands-on experiences for a solid foundation in the mathematical areas explored. Pictorial activities represent the concepts with appropriate pictures. At the symbolic level, concepts are represented by symbols such as letters, numbers, and addition sentences.

- The reproducible Journal Page (page 49) gives children opportunities to draw and write about the math they have learned. In addition, it gives the activities closure and can be used as an evaluation tool. For young children, you may decide to focus on the drawing portion of the Journal Page. One approach could be to develop a set of guidelines that must be used every time in their journals. For example, encourage children to “Draw a picture of what you did today. Include all members of your group, the materials used, and a description of the activities in your drawing.” Another approach could be to specify different instructions every time. For example, for the third activity on quilts, you may want to read a story about quilts, and then have children make up their own stories in their Journals. Another approach would be to have children design their own math problems on their Journal Pages.

- Chapter 8 presents games and puzzles that integrate the concepts covered in this book.

GRAPHING AND PROBABILITY



AREAS OF EMPHASIS:
Graphing, Probability, and
Data Analysis

Tile Graph

TEACHER MATERIALS

- Color Tiles
- Tile Sheet 18 Transparency
- Tile Grid Transparency

STUDENT MATERIALS

- Color Tiles
- Tile Sheet 18
- Journal Page

Concrete Activities

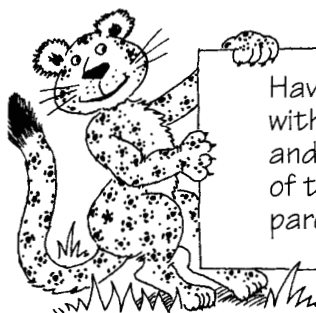
- Take a handful of Color Tiles and place them on the overhead. State: "I am going to graph these Color Tiles." Take the first tile, show it to the class, then place it on the appropriate column. Note: Color in the box at the bottom of each row to emphasize which Color Tile you are graphing. Repeat until you have placed all tiles on the graph.
- Discuss the graph: "Which tiles do I have more of? Do I have to count to know this? (No; the tallest column has the most tiles.) Do I have to count to know which color I have the least of? (No; the shortest column has the least tiles.) Do I have the same of any two colors? (Answers will vary; yes, if two columns are of the same height.) How many tiles do I have altogether? (Count)"
- Children work in groups and use Tile Sheet 18. Have two people from each group take a handful of tiles. Groups use Tile Sheet 18 to graph the two handfuls of tiles.

Pictorial Activities

- Ask children to remove the tiles and color in the squares on each column with the corresponding colors (blue, yellow, green, red).

Symbolic Activities

- Ask children to answer the following questions on another piece of paper:
 - Of which color or colors of tiles did you have most?
 - Of which color or colors of tiles did you have least?
 - Did you have the same amount of any two colors?
 - If yes, which colors?
 - How many tiles did you have altogether?



Have groups exchange the answers from Activity 5 with another group. Each group reads their answers and uses the information to try to duplicate the graph of the other group. When all groups are finished, compare graphs. Were they close? Were any exact?



TILE SHEET 18

Number of Tiles

Yellow

Blue

Red

Green

Color

COLOR TILE GRID / HUNDREDS MAT (PART 1)

