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## ABOUT THE AUTHORS

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# INTRODUCTION

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Integrating children's literature into your mathematics program can be a fresh, enriching experience for you as a teacher and for your children in learning mathematics, for appreciating mathematics in varied settings, and for understanding mathematics in a non-threatening, inviting environment. In *Hands-On Math and Literature with MathStart*, more fun and often challenging activities are provided to supplement those in books.

With his innovative MathStart series that includes books in three different levels, well-known children's author Stuart Murphy gives children a unique way to understand and develop the mathematics content. Each core topic selected by Murphy for his books correlates with the National Council of Teachers of Mathematics Principles and Standards for School Mathematics (2000). In many cases, the books are appropriate matches for local and state standards. The levels are by ages:

- Level 1: Ages 3 and up
- Level 2: Ages 6 and up
- Level 3: Ages 7 and up

Each level of the MathStart series examines various core topics in 21 different books. The readability of each book differs and should not be the determining factor in using the book for a specific grade level. Besides regular classroom students, special needs and ESL students will benefit from their teachers using books in the series as instructional tools or as reinforcements for concepts taught in class. Extensions of the mathematics presented in several of the books are appropriate for middle and high school students.

For each book in the MathStart series, *Hands-On Math and Literature with MathStart* presents the following pertinent information for teachers:

- Title
- Story Summary
- Grade Level
- Concepts or Skills
- Objectives
- Materials Needed

- Activities
- Writing Activities
- Internet Sites
- Assessment Ideas

Books in MathStart, Level 2, cover the following topics: Adding, comparing sizes, directions, recognizing shapes, doubling numbers, counting, opposites, ordinals, understanding capacity, hours, counting on, comparing amounts, counting by 5s and 10s, comparing weights, odd and even numbers, subtracting, number order, matching, sequencing, matching sets and sorting.

Besides the activities Murphy suggests at the end of each book, additional activities for other mathematics concepts are provided for teachers to use to expand or extend their students' mathematical learning and understanding. Teachers will be able to use these activities to develop their own lessons or thematic units of mathematics study.

Internet sites have been listed with some book entries for teacher's perusal. Some sites are inclusive with other core topics, while other sites are specific for one topic or book.

Writing or communication activities have been presented for students to think, talk, or draw about in a class or small group situation. Some of the writing prompts will provide teachers with feedback as to whether students have understood the mathematics presented. Other writing prompts provide students with opportunities to expand their thoughts and understanding of the mathematics presented in the stories.

The assessment component will let teachers measure the understanding of the mathematics using a pencil and paper task, a performance task with manipulatives, or a writing assignment. Some Internet sites will allow teachers to assess students' understanding also.

Children's literature and appropriate activities with manipulatives can be an inviting experience for children to learn and understand mathematics. By using manipulatives in the classroom, children will be able

to understand mathematical information, develop mathematical concepts beyond conventional classroom settings, independently learn and understand mathematical concepts, rejuvenate creative think-

ing, have an appreciation for reading, and have a focal point on problem solving strategies and using connections to everyday living.

# NCTM CORRELATION

	Number & Operations	Algebra	Geometry	Measurement	Data Analysis & Probability
100 Days of Cool	√			√	
Animals on Board	√				
The Best Vacation Ever					√
Bigger, Better, Best!				√	
Captain Invincible and the Space Shapes			√		
Coyotes All Around	√				
Elevator Magic	√				
A Fair Bear Share	√				
Get Up and Go!	√			√	
Give Me Half!	√				
Let's Fly a Kite			√		
Mall Mania	√				√
More or Less	√	√			
Pepper's Journal				√	√
Probably Pistachio					√
Racing Around				√	
Same Old Horse					√
Spunky Monkeys on Parade	√				
The Sundae Scoop					√
Super Sand Castle Saturday				√	
Tally O'Malley					√

# LET'S FLY A KITE



## Story Summary

Bob and Hannah are brother and sister that often do not like to share things. Their babysitter Laura comes to the house and asks them if they would like to go to the beach to fly a kite. Of course, both siblings do. First, they must make the kite and decorate it. They learn that their kite has a line of symmetry that provides equal areas to decorate.

Even on the trip to the beach, they learn that the backseat of Laura's car has a line of symmetry that gives Bob and Hannah the same area to sit. When they reach the beach, they also find that their beach blanket and sandwich have lines of symmetry that provide each with the same area to sit and the same amount to eat.

New York: Harper Collins Publishers, 2000

ISBN: 0-06-028034-4

## Grade Level 2-5

### Concepts or Skills

- Symmetry
- Mirror image (line reflection image)

### Objectives

- Describe a line of symmetry
- Find lines of symmetry for various figures
- Draw lines of symmetry for various figures

### Materials Needed

- Unifix Cubes
- Manila paper
- Pattern blocks
- Crayons or colored pencils
- Construction paper
- Symmetry grid
- Shapes page

## Activity 1

Distribute a sheet of manila paper that has a kite shape drawn on it. Have students draw a line of symmetry, and then decorate each triangular region so that one side is the mirror image of the other side.

## Activity 2

Draw a line on a 8.5 x 11 inch paper. Make copies of the page and distribute to each student. Hand out pattern blocks to pairs of students. Have one student create a pattern on one side of the line. The other student constructs the mirror image of the pattern on the other side of the line. For example

A similar activity could be done with older students using geoboards.

## Activity 3

Have students go on a symmetry walk through the school. Can they see any objects that are symmetrical? Let students make a list when they return to the classroom. Share with classmates.

## Activity 4

Make copies of the Shapes page on construction paper. Cut out the different shapes. Fold on the line of symmetry and cut the shapes into two parts. Place the shapes in a bag and have each student draw a shape from the bag. Once all students have a shape, let them find the matching piece.

As an individual activity, one student matches all the shapes in the bag.

### Activity 5

Give each pair of students several Unifix Cubes and the Symmetry grid page. Similar to Activity 2, one student creates a design on one side and the second student constructs the mirror image on the other side.

### Activity 6

For older students, have them find logos that have lines of symmetry. Here are some examples:

- McDonald's arch
- Mercedes-Benz automobile
- Honda automobile
- Hilton Hotel
- Chrysler automobile

### Activity 7

For younger students, look at the capital letters of the alphabet. Which letters have lines of symmetry? Which have more than one?

1 line of symmetry: A B C D E M T U V W Y

2 lines of symmetry: H I X

Infinite number of lines of symmetry: O

Note, depending on how an X is made, it could have 4 lines of symmetry.

Note, depending on how a K or Q is made, each could have 1 line of symmetry.

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### Notes:

## Writing and Communicating

Have students discuss or write about why symmetry is important

Have students respond to the prompt "If We Didn't Have Symmetry in the World."

### Assessment

Provide two-dimensional shapes and have students use a ruler to draw the lines of symmetry for the shapes.

Have students create a shape with pattern blocks or Unifix Cubes that has exactly one line of symmetry.

### Internet Link

<http://www.sunshine.co.nz/nz/37/themes/jtheme11.html>