

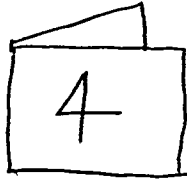


## **MATHEMATICS AND LITERATURE CONNECTION**

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### PROGRAM OUTLINE

Students for this program are in grades kindergarten to five. However, certain literature can be used for grades six through eight by upgrading the lessons.

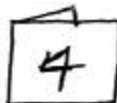
Overview: The program developed because of a need to motivate students to enjoy and want to do mathematics. The literature enhances the math lessons in different ways. By reading the story, poem, or expository material, the lessons become more real to the students as they explore the topic that has been introduced. Exploration of the mathematics topic is done using a hands-on method employing cooperative group lessons as much as possible.

The interdisciplinary use of literature with mathematics also influences other subject areas. Social Studies and Science lends itself to this program as well. It is expository reading materials in these subjects that can also phase themselves into math lessons. Communication Arts has many topics that can benefit from the mathematics connection. Story responses, writing stories on similar themes, writing story problems for future math lessons, and setting up book clubs (different stories on the same topic are read by different groups and then each group conducts a discussion with the other groups) are just some of the ways of using the math literature during a reading block.

As a mathematics staff developer, I feel that I had to bring something into the classroom to help my new teachers with classroom pacing by making a connection between two major subject areas. I found this not only helped the new teacher, but also the veteran who used the literature as the reading lesson. We then worked together to do a math lesson with the same literature. My goal was to make math interesting to the students and teachers by the use of literature. I also wanted to take a subject everyone felt more comfortable with and use it to help break down that math stigma.

This program can be summed up by a quote from the New York State Teachers of Mathematics Conference in October of 1999. The quote is from an anonymous source: "Mathematics is not about numbers. Mathematics is about ideas."

Timeline: The amount of time devoted to a topic depends on the lesson. There are some lessons that are for one period and there are projects that can last a few days or a week. Time also has to do with whether the lesson is an introduction to a topic, a review, or a culmination of the topic and can be a combination of topic areas in a project.



Types of Assessment: The need for different types of assessment has become more significant since learning accountability has become more important for the students, teachers and administrators. With the responsibility of learning falling more on the students' shoulders, the formation of classroom rubrics has become necessary. It is a good idea for the class to discuss what makes a good math student and what is necessary for a student to show good work in mathematics. The same is true with all other subject areas. Posting different rubrics in the classroom for the students to see will help self-evaluation of a child's work.

For mathematics, weekly evaluations are important to see if the topic areas have been mastered. Periodic skills tests are important to make sure that arithmetic is being practiced. Portfolio assessment should be ongoing. All these types of mathematical assessments, along with a student rubric to self evaluate one's own work, helps the teacher prepare instruction in a more efficient manner.

For language arts, writing samples are one way of assessing a student. Other ways for assessing include: writing rubric, writing check list, weekly tests on spelling, grammar, and comprehension of reading materials. Listening skills can be assessed by dictation testing. All these types of assessment can be part of portfolio assessing. Work samples help the classroom teacher with a student's instructional needs.

The assessment done for mathematics and reading helps the teacher see the whole class picture. Follow-up lessons can be geared for the needs of the class, group or individual student.

### LESSON PLANS

Samples of lesson plans for several topics are below. Stories that are similar will be listed in the material section of the lesson. As a mathematics staff developer, it is my responsibility to show how to use the literature as part of a math lesson. With an extensive children's literature bibliography, I have included lesson plans on various topics, but not all the books.

### MATH TOPIC: GENERAL

#### I. Grades K & 1 (NYC standard M8: Putting Mathematics to Work)

Objective: Students will learn that math is all around our lives.

Materials: A Day With No Math by Marilyn Kaye. Crayons, Paper

Procedure: Sitting on your reading rug, the story is read to the students.



Discuss the story with the class. What was the first dream about? What happened in the second dream that did not happen in the first dream? In the pictures, can items that have to do with numbers be found? After the discussion, have the children draw a picture about the book. Several ideas can be given to the class or gotten from them. The following suggestions can be made: 1) fold your paper in half and draw a picture from the first dream and then a picture from the second dream. 2) Show something that you liked about the story. 3) Draw items from the story that changed from one dream to the other. Have the children explain their drawing to the class.

**Homework:** Explain to the students that you want them to find five items in their home that have numbers on them. Go around the room modeling how to find things with numbers on them. Then have different students find things with numbers. Tell the children to have someone from home help them find the items.

## II. Grades 2 & 3 (NYC Standard M8: Putting Mathematics to Work)

**Preparation:** Make a collection of old newspapers and magazines 2 to 3 days before the lesson. This is a good "getting started" lesson at the beginning of the school year. Make up cooperative learning groups before the start of this lesson.

**Objective:** Students will learn how mathematics is in our lives.

**Materials:** A Day With No Math by Marilyn Kaye. Old newspaper and magazines. Large size construction paper or painting paper. Glue and scissors for each group.

**Procedure:** Discuss the picture on the cover of the book. What does this have to do with the title of the book? Have the children predict what a day without math would be like. Read the story without interruption. Now discuss the story and how the two dreams differ. After the story is read, the students go into their cooperative learning groups. The old newspapers and magazines are handed out to the groups. One sheet of large construction paper or painting paper is given to each group. Scissors and glue are also given out. The Recorder of each group will write the names of the participants of that group. The children are to find pictures in the papers and magazines that have to do with math, cut these out, and make a collage on the large paper. The Helper is to make sure that all members of the group are doing their work. Discussion in each group should be taking place as you walk around the room facilitating the groups. The children should be talking about the pictures they are choosing for the collage and why they feel it is appropriate.

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Follow-up: Each group must have an opportunity to tell about their collage. This is the job of each groups Reporter. It is important that the group discuss their collage so when the Reporter gets up to speak, he or she knows what to say as a representative of the group

Homework: The children are to find ten items in the home and describe how they relate to numbers. They are not to use anything from school. Modeling items in the classroom to show what is expected should be done. For example, the number on the classroom door tells us what our room is.

### III. Grades 4 & 5 (NYC Standard M8: Putting Mathematics to Work)

Objectives: Student will learn that mathematics is all around our daily lives.

Preparation: Collection of newspapers so that each cooperative group will have at least one whole newspaper. Make up cooperative learning groups.

Materials: A Day With No Math by Marilyn Kaye. At least one whole newspaper for each group. Writing paper for the Recorder. A timer.

Procedure: Ask the students if they have heard the story. If some have, tell them they are going to hear it again. Since we can watch a movie or cartoon over many times, we can also hear a story more than once. Each time we hear a story we can pick up something that was previously missed. Read the story completely. Discuss how the dreams differed and how the differences were shown in the pictures of the story. Tell the class that they are going to play a game. Each group will get a newspaper and a recording sheet. The recorder will write all the items that they find in the newspaper that has to do with math. The timer will be set for 15 minutes. When the timer goes off, the pencils go down. Anyone who does not follow the this rule forfeits their team's right to continue to play. Each team gets a chance to read their math findings. If another team has the same finding, it gets crossed off everyone's list. Any item not crossed off gives that team a point. The more items that a team has, the more points the team gets. The group with the most points wins

Homework: Find five items in your life that have to do with numbers. You may not use any items from school, i.e. homework, computation, etc.:

### IV. Grades 4 & 5 (NYC Standard M8: Putting Mathematics to Work)

Objective: Students will learn different aspects of mathematics.

Materials: The Math Curse by J. Scieszka and L. Smith.

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Preparation: Read the story to familiarize yourself with the different math terms used.

Procedure: Discuss the cover of the book. What is a curse? Have students try to predict what the story is about. Read the whole story before answering any questions. Go back over the book and re-read the story, page by page, talking about each different aspect of mathematics that is being mentioned. Have the children write the new math vocabulary in their notebooks. An introduction to this vocabulary can be exciting when worked into a lesson where certain types of math is used. For example, what kind of math is used by meteorologists?

Homework: Have the students pick five of the vocabulary words and see where this math is used in the real world. For example: how is calculus used and by whom?

#### MATH TOPIC: GEOMETRY

##### V. Grades K & 1 (NYC Standard M2: Geometry & Measurement)

Objective: Students will recognize different shapes and their names.

Preparation: On each table put basic 2-dimensional shapes (square, circle, triangle, and rectangle) and a copy of the inside of a refrigerator (see worksheets).

Materials: Tatum's Favorite Shape by D. Thole. Picture of the inside of a refrigerator. 2-dimensional shapes and geo-boards if available.

Procedure: Have the children sit on the reading rug and read the story to them. Discuss the children's favorite shapes. Using the picture of the inside of the refrigerator have the students identify each of the shapes discussed in the story. At their table, the students will point to the shapes that you say. Have the children look around the classroom to find the shapes from the book. Have the students trace the shapes in their notebooks and label each of the traced shapes.

Homework: Two sheets are to be used at home. These worksheets ask the students to identify shapes by circling and coloring.

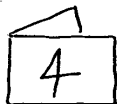
##### VI. Grades 2 & 3 (NYC Standard M2: Geometry & Measurement)

Objective: Students will be able to identify plane figures and solid figures.

Vocabulary: plane figure = 2-dimensional figure; solid figure = 3-dimensional figure; triangle, pyramid; square, cube, rectangle, rectangular prism, rhombus, parallelogram, cone, sphere, circle, etc.

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Materials: The Greedy Triangle by M. Burns.

Examples of solid and plane shapes on each table. Geo-boards.

Procedure: Read the story completely. Review the names of the plane figures.

Discuss the new names of the shapes heard in the story. Using the examples of solid shapes on the desks, the students will explore the differences between solid and plane figures. Have them list these findings in their own words in their notebooks. Discuss the math terms for corners, sides, lines, edges, and any other term that might come up during the explanations of the children's findings. (This can be a cooperative learning lesson.) Looking in the classroom, the students will identify items of solid and plane figures. Using the geo-boards, have the children form different figures. What types of shapes are formed on a geoboard—solid or plane?

Homework: Students will look in their refrigerators to find 2- and 3-dimensional figures. They are to find no less than 5 no more than 10. They are to list what they found and label in mathematical terms. A worksheet can be made if necessary.

VII. Grade 4 & 5 (NYC Standard M2: Geometry & Measurement)

Objective: Students will learn about polygons and their properties.

Vocabulary: Polygon, triangle, quadrilateral, pentagon, hexagon, etc.

Materials: The Greedy Triangle by M. Burns

Procedure: Read the story to the class. Discuss the properties of a polygon.

Have the children write the definition of a polygon. Make a list of polygons and their properties on chart paper to be hung in the classroom. Have the students write these notes in their math books.

Homework: Have the students choose 5 different polygons and find where they are used in the real world.

Follow-up: To continue the lesson on polygons, see the worksheet on plane and solid figures from *Math Power*, Amenhauser 1995.

VIII. Grades 2-5 (NYC Standard M2: Geometry & Measurement)

Objectives: 1. Students will form shapes using large and small tangrams.

2. Students will learn about congruent shapes.

Preparation: Sets of tangrams for each cooperative learning group. Copies of the worksheet for homework.



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Materials: Tangrams for cooperative groups. Crayons and paper.  
Grandfather Tang's Story: A Tale Told With Tangrams by A. Tompert.

Procedure: (A double math period is needed) Read the story to the class. Have each group open the packet of tangrams and talk about the items in the bag. What type of figures are these? How many different shapes are there? As the story is read again, have each cooperative group make the shapes of animals using the tangrams. To record these shapes, the members will trace the shapes in their math notebooks. At the end of the reading, each Recorder will report to the class how their group formed the animals.

Homework: Students will take a copy of the tangram puzzle home. They will cut the pieces apart and try to put it back into the large square. They will write about this experience.

#### IX. Grades 3-5 (NYC Standard M2: Geometry & Measurement)

Objective: Students will be introduced to the properties of a circle.

Materials: Sir Cumference and the First Round Table: A Math Adventure by C. Neuschwander. Compasses for each student.

Vocabulary: radius, diameter, circumference, arc

Procedure: Have the students try to predict what the story is about by looking at the cover. When does this story take place? How can they tell if it is or is not a modern setting? Read the story without interruption. What shapes are discussed in the story? Can anyone remember the definition of the three important properties of a circle? Go over these words and have the students write the definitions in their notebooks. Demonstrate how to use a compass. Have the children draw different size diameters using the compass in their notebooks. Have them label the size of each diameter and radius. Do you need to measure each radius if you have measured the diameter? Why or why not?

Homework: Find 5 items in the home that are circles and measure their diameters. Figure out their radii. Compare the size of the diameters and the radii.

Follow-up: To continue the lesson on circles, the story Sir Cumference and the Dragon of Pi: A Math Adventure by C. Neuschwander should be read. This story discusses the relationship of Pi, circumference and diameter.

### MATH TOPIC: COUNTING, SYSTEMATIC LISTING & PROBABILITY

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X. Grade K & 1 (NYC Standard M4: Statistics & Probability)

Objective: Students will learn how to do systematic listing.

Materials: Caps for Sale by E. Slobodkina. (The big book is available.)

Items to represent the different colored hats. (There should be the correct number to represent each color.) Crayons. Overhead copies.

Procedure: Read the story. Have volunteers come up and count the total number of hats that were for sale that the man has on his head.. Have volunteers count the different color hats. Are there the same amount in each color? Using the materials that represents the hats, place them on the chalkboard or a feltboard in the same order as on the peddler's head. Have a volunteer sort the hats by color. Model one of the combinations that can occur with the hats. For example, one combination can be red, brown, blue, and gray. A second combination can be red, blue, gray, and brown. Have the children find other combinations and record them by using the same color crayons to match the caps. How many different combinations can be made?

Homework: Using the worksheet, have the students show what was done in class by using pictures or words.

XI. Grade 2 & 3 (NYC Standard M4: Statistics & Probability)

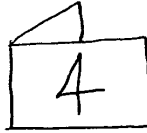
Objective: Students will learn to systematically count and list different combinations of items.

Preparation: Overhead copies of worksheets and hats. Copies of classroom worksheets and homework.

Materials: A Three Hat Day by L. Geringer Worksheets to help record the different color combinations that are possible when wearing 3 hats. (The teacher can also read the story Hats, Hats, Hats by A. Morris which comes in a big book.)

Procedure: Read the story to the class. Refer back to page 9. How many three hat combinations can be worn? How do you know you have all of the combinations? Have the students discuss their answers to the questions. Using the recording sheet, have the students work out all the possible combinations of wearing three specific hats. (This is a cooperative lesson.) Have each group record the method by which they arrived at their answers. Each group needs time to report to the other groups how they approached the task and what they found.

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Homework: There are 2 worksheets that can be used for homework. (See attached worksheets.)

## XII. Grades 3-5 (NYC Standard M4: Statistics & Probability)

Objective: Students will learn why certain numbers appear more often than others when two number cubes are thrown.

Preparation: Copies of the game board. Number cubes for the pairs of players.

Materials: Jumanjui by A. Singer. Game boards. Dice. Overhead game board.

Procedure: Read the story. Discuss the game played by the characters in the story. Put the students into teams of two. Give each set of players one gameboard and a pair of number cubes. Using the overhead to model the game, tell the class that Judy needs to roll a 12 to get out of the jungle. You will experiment to find the answers to two questions: 1) How likely is it that Judy will roll a sum of 12? And 2) What is the sum she is most likely to roll? Explain that as the partners roll the dice, they are to record each number related to the sum. For example, if a  $5 + 4$  is rolled, these numbers are recorded above the 9. If  $2 + 4$  is rolled, then it is recorded above the 6. This continues until the team reaches the finish line. Each team takes their results and colors them on a larger chart so that the whole class' results are posted. A discussion about the data takes place.

Homework: Have the children write a journal entry about what transpired today. The children should discuss the data collection and what it means.

Follow Up: Make strips numbered from 2 to 12. Pairing the students, give each student 11 markers to be placed on any number, any way they want them. All markers must be placed before the number cubes are thrown. More than one marker may be placed on a number and not every number needs to be covered. Each partner takes a turn to throw the number cubes. If there are no markers of a number, the player's turn is over and the partner rolls the dice. The sum of the dice allows the student to remove one marker from the number of the sum. For example, if  $3 + 5$  is thrown then one marker at 8 is removed. Only one marker is removed for one turn. The game is over when a partner has removed all of his/her markers. That is the person who wins as well. As the number cubes are thrown, each partner records the numbers thrown and their sums. Why does certain numbers come up more often than others? After each group has played 2 games, a class discussion needs to occur to explain the students findings

### MATH TOPIC: PROBLEM SOLVING

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XIII Grades K-2 (NYC Standard M5: Problem Solving & Mathematical Reasoning)

Objective: Students will learn how to approach and solve a problem.

Preparation: Cover only the title of the book.

Materials: The Giant Jam Sandwich by J. V. Lord. Drawing paper. Crayons.

Procedure: Have the students look at the picture on the cover of the book.

What do they see? Have them make a prediction about the name of the story and what they think the story could be about. Read the story up and including to the part where there is the town meeting to discuss how to get rid of the wasps. Stop at this point and have the children draw a solution to get rid of the wasps. One sheet of drawing paper is given to each cooperative group. The children are to discuss what they can invent to rid the town of the wasps. Allow 20 minutes for this task. Have the students put down the crayons and listen to the end of the story. Then each Reporter will come up and explain the invention that their group designed.

XIV Grades 2 & 3 (NYC Standard M5: Problem Solving & Mathematical Reasoning)

Objective: Students will learn how to approach problem solving.

Materials: Marti and the Mango by D. Moreton. Paper and pencil for each group.

Procedure: Read the story to the class. Talk about the different ways Marti collected clues. In cooperative groups, have the children discuss different ways to solve problems and record their ideas. Walk around and help facilitate the discussions. Each group gets to share their ideas.

**MATH TOPIC: DATA COLLECTION AND STATISTICS**

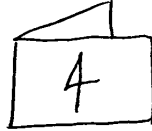
XV Grades K & 1 (NYC Standard M4: Statistics & Probability)

Objective: Students will sequence and count letters in names.

Materials: Chrysanthemum by K. Henkes. Post-its. Pencils.

Procedure: Read the entire story. Discuss the number of letters in Chrysanthemum's name. Are there letters used more than once? More than twice? How many letters make the name Chrysanthemum? How many letters are in the alphabet? What is the relationship to Chrysanthemum's name? Have the children write their names on the post-its and count the number of letters in their names. Write numbers on the

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chalkboard to coincide with the number of letters in students' names from the least amount of letters in a name to the most amount of letters in a name. For example, if there is a child with a name made from 3 letters, this is the starting number on the chalkboard. The number line continues until the largest name is posted on the board. A discussion of what is seen on the chalkboard should take place. Draw lines around each column of post-its. Have the children draw a response to the story and the math lesson in their math journals.

Homework: Have the students find out the amount of letters for each member of their family. They need to record their findings in their homework book.

XVI Grades 2 and 3 (NYC Standard M4 Statistics & Probability)

Objective: Students will make a bar graph by collecting data and they will then analyze this data.

Material: Chrysanthemum by K. Henkes. Post-its for each student. Graph paper. Crayons. (May need two periods.)

Procedure: Have each student write their first name on the post-it, count the number of letters in the name, write the number on the post-it and circle the number. Now read the entire story. How many letters are in Chrysanthemum's name. What is the relationship between the number of letters in Chrysanthemum and the number of letters in the alphabet? Have the students post their names onto the chalkboard above numbers that coincide with the amount of letters of their own name. To do this call out the numbers so children take turns going to the chalkboard. Discuss what is seen on the board. Draw lines around the post-its. Does this resemble a particular graph? Have the children draw the bar graph on the graph paper. All the attributes that make up a bar graph are to be used: a) 0 at the point of the right angle of the axes; b) title for the graph; c) label the bars; d) space the bars evenly; e) the bars should be the same width; f) title for each axis. Discuss the data represented by this graph. For example, which column has the most --- 5 letter names, 9 letter names, 3 letter names, etc. What other information can be obtained by this graph? Is there another type of graph that could be used? Discuss the pictograph. Model a pictograph and have the students copy it in their notebooks.

Homework: The students will make a pictograph using the information from the bar graph. Graph paper could be given to each student for this.

XVII Grades 4 & 5 (NYC Standard M4: Statistics & Probability)

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Objective: Students will collect, graph, and then analyse the data.

Materials: Chrysanthemum by K. Henkes. 2 different color post-its. Graph paper. Calculator for each cooperative group. ( May take 2 to 3 lessons to finish all.)

Procedure: Have each student write their first name on a post-it. Start a bar graph by having the students post their names on the chalkboard according to the amount of letters in their first names. Start with the name having the least amount of letters and continue until all names are posted. Read the story to the class. Discuss the information that can be obtained from the bar graph formed by the post-its.

Using 2 different colors of post-its, use one color for vowels and one for consonants. Have each child write the letters of his/her name on the post-its, 1 letter on each post-it. If there are double letters, 2 post-its are to be used to represent the use of a letter twice. For example, if there are 2 "t's" in the name, then 2 post-its are needed in the consonant color. If there are 2 "A's", then 2 post-its for vowels are needed. Working in cooperative groups, each group will total the amount of each letter in the names of the group. For example, the total for "e", "t", "c", etc. Make a letter line for the chalkboard so the post-its can be attached under the correct letter. Have one student from each group post all their groups post-its. (The letter line should be kept in alphabetical order.) Which letter(s) appear the most? Which letter(s) appears the least? Is it possible to make a graph from this data? What types of graphs can be made?

Homework: Using graph paper and the results of their own group, have the students make a graph from their findings.

Follow Up; Using calculators, have each cooperative group find the percentage frequency of the letters that have been collected in their own group. Combine the results for the entire class.

XVIII Grade 3-5 (NYC Standard M4: {Statistics & Probability})

Objective: Students will revisit data analysis from a bar graph.

Materials: Amazing Bats by F. Greenaway. Worksheet called "Icky Animals" for all students.

Procedure: Read the story about bats. Facilitate a discussion about the myth and truth about bats. Have the class make a Venn Diagram about bats. Take a class survey about the bats (i.e. favorite bat or most icky bat). From the survey, have the students make an appropriate graph within their

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cooperative learning groups. Each group needs time to explain their work to the others.

Homework: Each child receives a copy of the bar graph "Icky Animals." And answer the questions using the graph data.

### **MATH TOPIC: NUMBERS & NUMERATION**

XIX Grades K-2 (NYC Standard M1: Number & Operations)

Objective: The students will understand what 100 means. .

Preparation: This is an ongoing project that encompasses the first 100 days of school. Only the days that the children are present count. Different activities are needed to help the children understand what the amount 100 is. Some activities for a daily number count would be: a) bring in 1 penny a day to make a collection of 100 cents (students should bring in a ziplock bag for this); b) mark the calendar to keep track of the 100 days; c) mark the temperature for each day to see the changes; d) create charts that list 100 items (for example: favorite movies, favorite TV shows, etc.). Culmination of this project is the 100<sup>th</sup> Day Celebration.

Materials: The Hundredth Day of School by A. S. Medearie

Procedure: Read the story to the class. Discuss the 100 Day project. Have the children brainstorm ideas for activities during the 100 days. Have the children think about and discuss the 100<sup>th</sup> Day Celebration.

Homework: Have students come up with five ideas for the 100<sup>th</sup> Day Celebration to be discussed and voted on at some time in the future. Each child gets a chance to explain their ideas to the rest of the class.

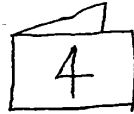
XX Grades 2-4 (NYC Standard M1: Number and Operations)

Objective: Students will learn multiplication using arrays.

Materials: Graph paper. Crayons. One of the following stories: a) Amanda Bean's Amazing Dream: A Mathematical Story by C. Neuschwander. b) One Hundred Hungry Ants by E. J. Pinczes and c) A Remainder of One by E. J. Pinczes.

Procedure: Read one of the above books. Read the book a second time and show the students the arrays in the pictures. As a multiplication table is introduced, the following activity should be done. Using graph paper, the children will make drawings of the factors. For example, 2 X 1 does

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color tiles.

**Materials:** Any story that is about patterning (for example: The Freedom Quilt, The Patchwork Quilt, The Coat of Many Colors, etc.). A bucket of color tiles, crayons with colors coinciding with the color tiles, graph paper with 1 inch squares cut into 4 by 6 size for each student, calculators for each student.

**Procedure:** Read a story about quilting. Discuss the type of patterning used in the story, what symmetry is and how the students will use it on their graph paper. Using the color tiles, each student is to form a pattern using 2,3, or four colors. They should do this on one side of the folded graph paper. Using a pencil, the student then initials the other side of the paper to mirror image the pattern. When this is done, the color tiles are removed and the mirror image of the pattern is then initialed on that side. Using the crayons to follow the pattern, all squares are to be colored by the corresponding initial. For example: where there is a "R" the square is shaded red, where there is a "Y" the square is shaded yellow, etc. On the back of the paper, each child needs to write his/her name and class. Using the calculator, each student then tallies the number of squares for each color and record the numbers on the back of the graph paper. At each table the students then tally the table sheets. Each table then records, on the chalkboard, the totals they obtained. It is important that you ask one child to report the totals in order to keep decorum in the classroom. Now all the students total the findings. This goes on in each 3<sup>rd</sup> grade classroom. One person is then chosen to put the quilt together. Each class is a patch for the quilt. It should all be backed and decorated to make it a proper quilt. This should be displayed where all the classes can see the quilt. Each class in the school, excluding the third graded, will be asked to make a guesstimate on the amount of each color (red, yellow, blue, and green) used on the quilt. The class that estimates the correct amount or is closest to the correct amount will win an ice cream party.

**Follow Up:** For grades 4 and 5, a class project in making tessellations continues to show a practical use of patterns in every day life.





# 3-D SHAPES ARE COOL!

Without geometry, you would go hungry. Don't believe us? Just look into our refrigerator. All of the foods and food containers in it are **three-dimensional (3-D)** shapes.

3-D shapes are shapes you can pick up or touch. You can't pick up a flat shape like a square or a circle. But you can pick up a 3-D cube or sphere (sfeer). Here are some common 3-D shapes:



cone



sphere



cube



rectangular prism  
(P.R.I.Z-um)



cylinder  
(SILL-un-der)

### WHAT TO DO

Take a closer look at our refrigerator. Which 3-D shapes can you find? Make a list. If you find a shape that doesn't match our pictures, ask your teacher to help you find its name.

Photo: Tim O'Neil



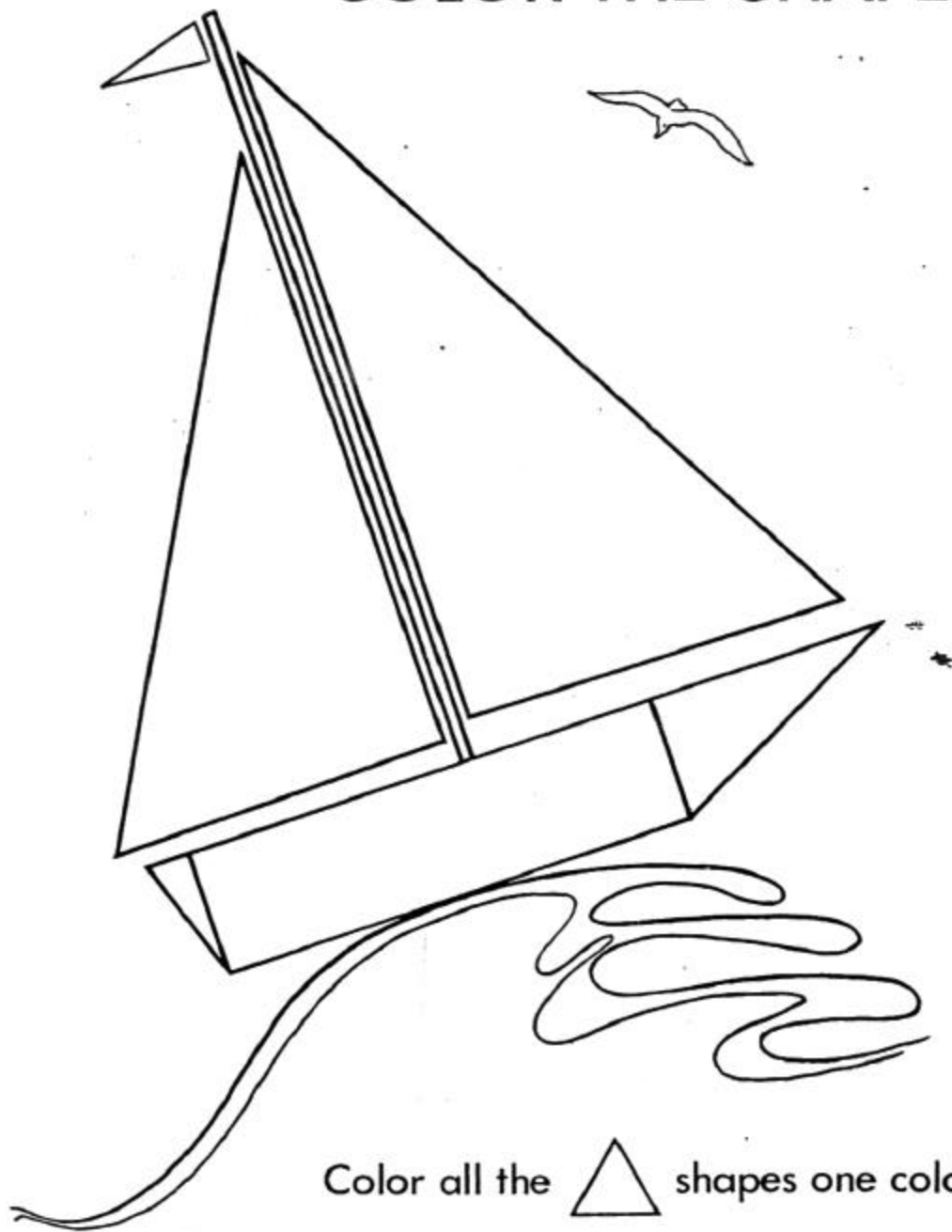
# SQUARE




Circle the  shapes in the picture.

---

# COLOR THE SHAPES



Color all the  shapes one color.

Color all the  shapes another color.

### YOU NEED:

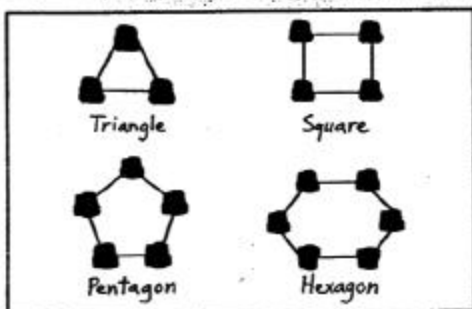
Toothpicks  
Small gumdrops

What shape can hold up the Golden Gate Bridge and the Eiffel Tower? A triangle can! A triangle is stronger than any other shape. That's why builders—and buildings—depend on them. Look at the photos on these pages. You'll see lots of strong triangles at work.

Why are triangles so tough? A triangle has only three sides. So it can't be pushed or pulled into any other shape. But don't take our word for it—find out for yourself!

### WHAT TO DO

► Use the gumdrops and toothpicks to make a triangle, a square, and other shapes, like these:



► One at a time, pick up a shape and hold it by two sides. Gently push, pull, and wiggle the shape. What happens to each one?

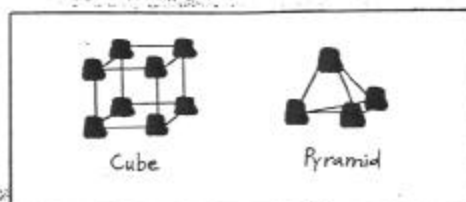
► Now hold one shape up straight on a table. Gently push down on one corner. What happens to the shape? Try it again with the other shapes. What happens?



Can you find the triangles in San Francisco's Golden Gate Bridge?

► If you push a little harder on your shapes, can you turn any of them into other shapes? Which ones?

► Make cubes and pyramids (PIH-ruh-mids) out of squares and triangles, like this:




Try putting different objects on your cubes and pyramids. Start with light items, like paper. Little by little, try heavier items, like books. What happens to the cubes and pyramids as you stack heavier things on top?

Do you think that triangles are the strongest shape? Why or why not?



Activity by Deanna F. Cook

Math Power

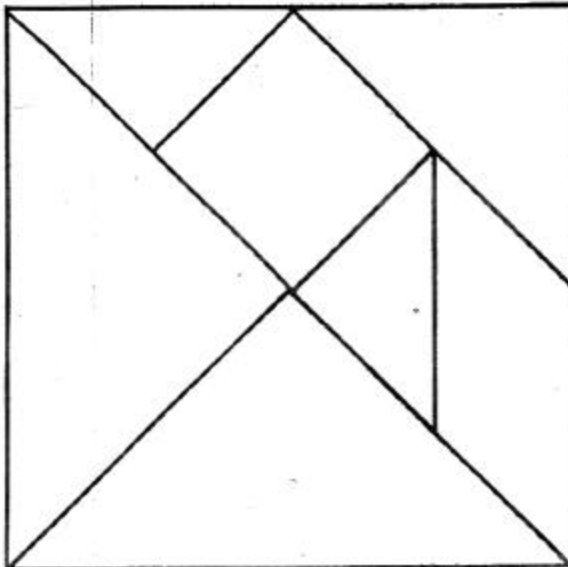
		<h1>Tan-Gram</h1>	
		DATE:	
TO: <i>Family</i>			
MESSAGE: <i>In class we've been using tangrams to explore geometric and other mathematical concepts. This seven-piece puzzle which originates from China can be intriguing to young and old alike. Use them to form a variety of geometric shapes, letters of the alphabet, animals, people and objects.</i>			
SENDER'S NAME:		PAGES ATTACHED:	

### TANGRAM PATTERN

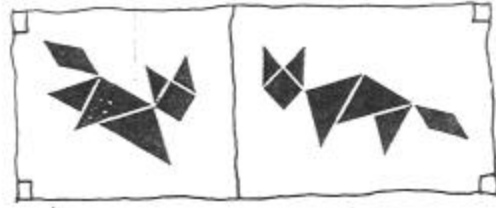
To make a set of tangrams, cut out the seven pieces and store them in an envelope or plastic bag.

To make a more durable set, use this as a pattern to make pieces from heavy paper, cardboard, wood, or even floor tiles. (Warm tiles in an oven for easier cutting.)

Use solid colors.



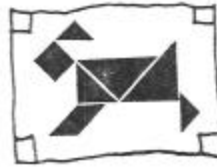
GRANDFATHER TANG'S STORY



rabbit.



dog!



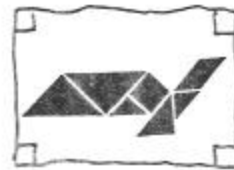
squirrel.



hawk.



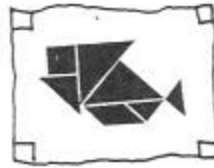
turtle.



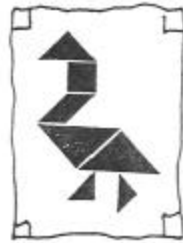
crocodile.



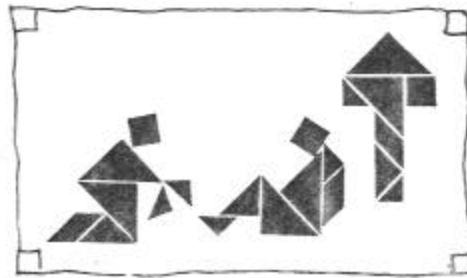
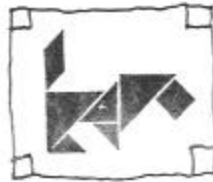
goldfish.



goose.



lion.

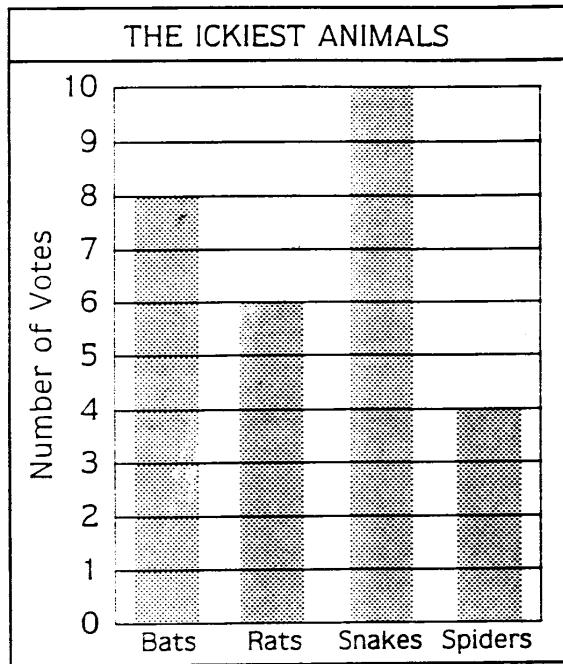


# ICKY ANIMALS

Some bar graphs have vertical bars.

Miss Warner's students voted on the animals they thought were icky. Each person got one vote. Then they made a vertical bar graph to show how they voted.

On this bar graph, the labels at the bottom tell which animal the bar stands for. The scale on the side tells how many votes it got.



Use the bar graph to answer these questions.

1. How many animals are shown?
2. Which animals did the class vote for? \_\_\_\_\_
3. What do the numbers on the side stand for? \_\_\_\_\_  
\_\_\_\_\_
4. Which animal got the fewest votes? \_\_\_\_\_ How many? \_\_\_\_\_
5. Which animal got the most votes? \_\_\_\_\_ How many? \_\_\_\_\_
6. How many votes did rats get? \_\_\_\_\_
7. Which animal got 8 votes?
8. Did rats or spiders get more votes? \_\_\_\_\_
9. How many more votes did snakes get than spiders? \_\_\_\_\_



## CAPS FOR SALE

There are red caps, blue caps, brown caps, and gray caps.  
How many orders are there if you want to stack one hat of each color on your head?

Show your answers in the space below. (Use colors!)

I found \_\_\_\_\_ different ways of stacking the hats.

# I D E A S

Name \_\_\_\_\_

## CLOWNS

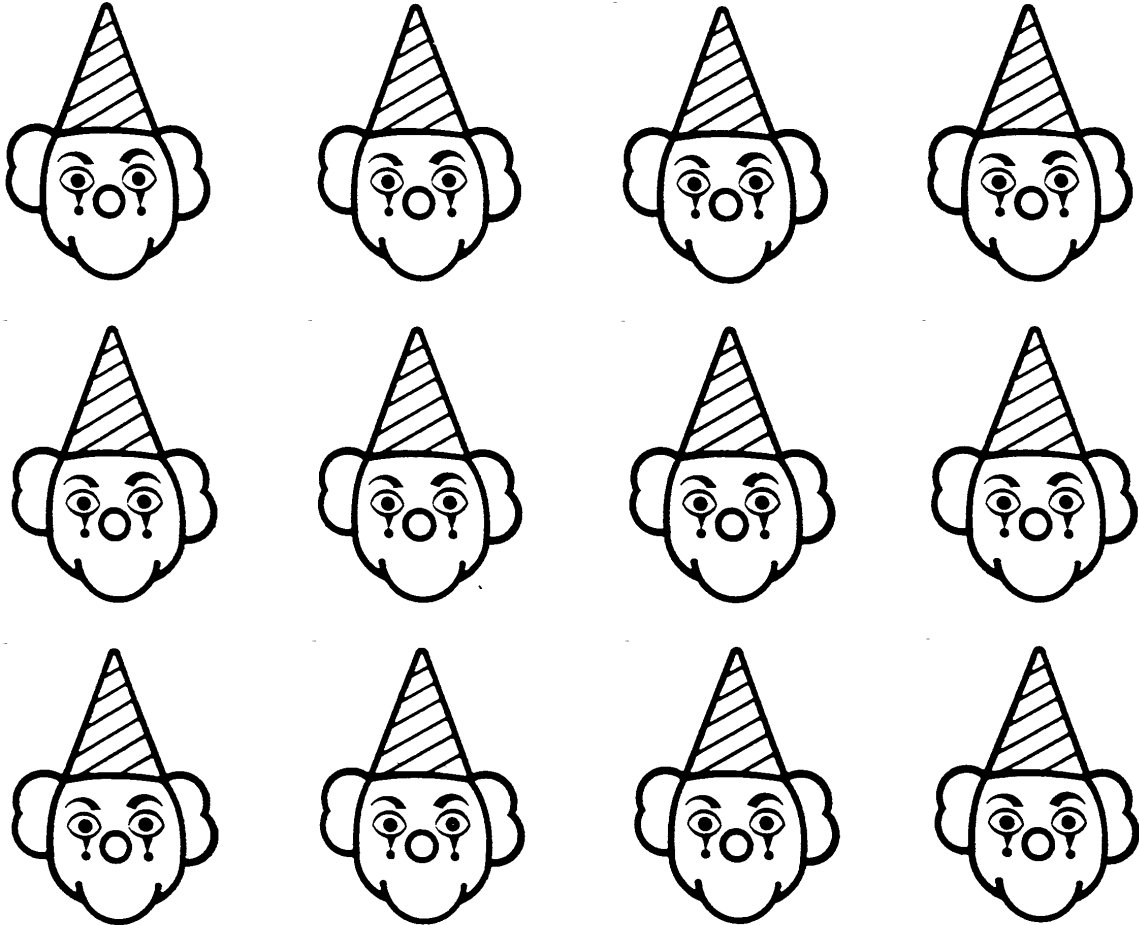
Each clown needs a smile ☺ or a frown ☹.

Each clown needs a colored hat: red, green, yellow, or blue.

How many different clowns can we color? No two should be the same.

Guess:

Color:



Conclude:

## A THREE HAT DAY

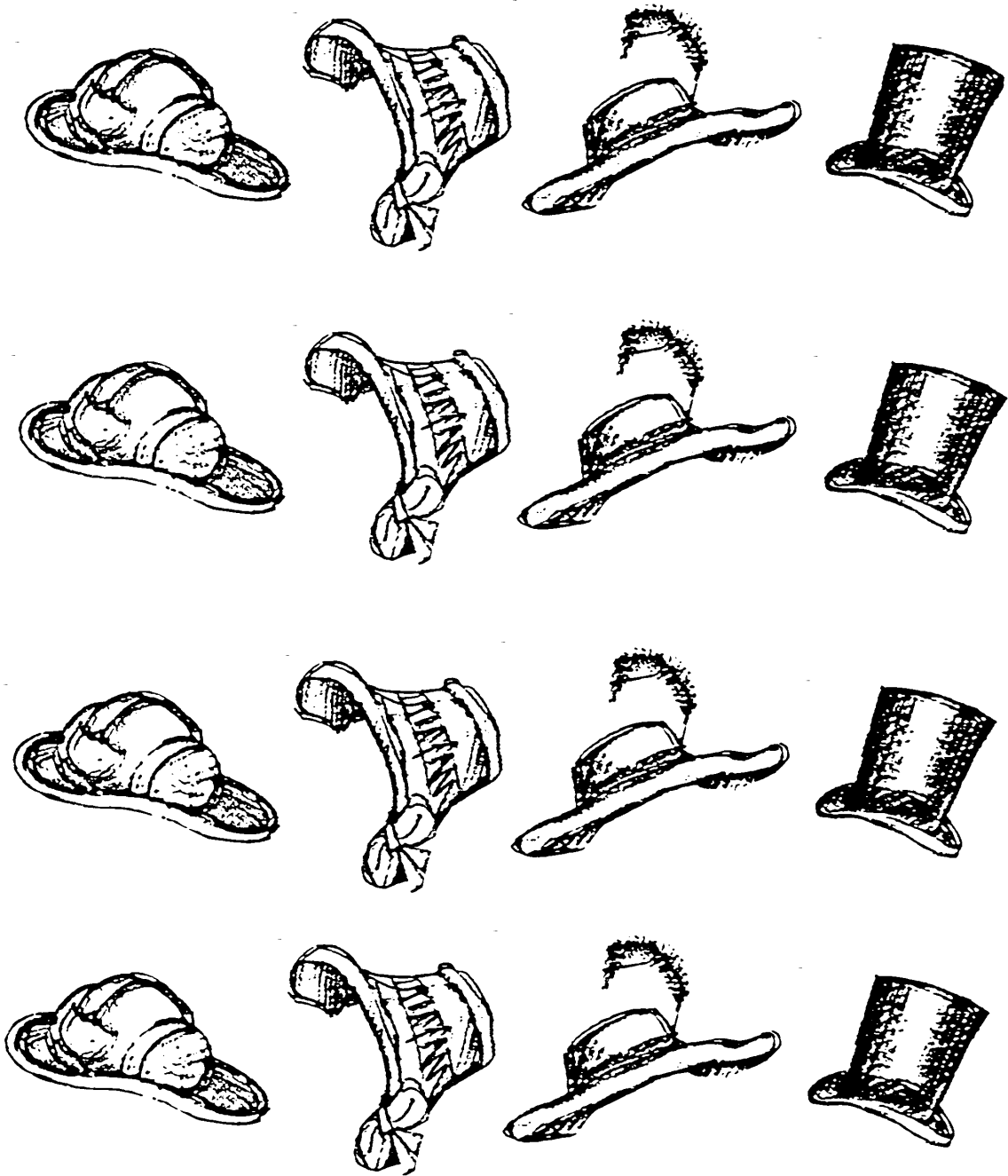
R.R. Pottle had many hats. Suppose one morning there were four hats on the hat rack and Mr. Potter wanted to choose a group of three of them to wear--all at the same time!



How many different groups could he choose?  
Draw all the different groups of three hats below.

I found \_\_\_\_\_ ways of choosing a group of three hats.

# HATS



# JUMANJII SYNOPSIS

Peter and Judy find a board game in a nearby park and rush home to play it. By rolling dice and moving markers on the board, they make their way from the jungle to the city of Jumanjii. Each time they land on a square that mentions a wild animal, that animal suddenly appears in the living room! The same thing happens with a monsoon and a volcano eruption. The children are frightened, but by the end of the game everything unusual disappears and life returns to normal.

# JUMANJII

How likely is it that Judy will roll a sum of twelve?

What is the sum she is most likely to roll?

Use a diagram to illustrate your point.

Illustrate all the possible outcomes in rolling two dice.

Name \_\_\_\_\_

Date \_\_\_\_\_

# ESCAPING THE JUNGLE



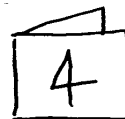
Finish Line →

2	3	4	5	6	7	8	9	10	11	12

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Math and Literature Bibliography  
Assorted Stories Assembled by Doris Abraskin

A Chair for My Mother. Williams, V.B. Scholastic, Inc. NY. 1982. ISBN 0-688-12612-X.  
(grades 2 & 3) Math topic: money.  
Summary: Story about a child saving money to buy a special chair for her mother after all their belongings are lost in a fire.

A Cloak for the Dreamer. Friedman, A. Scholastic, Inc. NY. 1994. A Marilyn Burns Brainy Day Book. ISBN 0-590-48987-9. (grade 3-5) Math topics: patterns, geometry, measurement.  
Summary: When a tailor asks each of his three sons to make a cloak for the archduke, the third son's design reveals his desire to travel the world rather than follow in his father's footsteps.

A Day With No Math. Kaye, M. Harthcourt Brace Jovanovich, Inc. NY. 1992. ISBN 0-15-301-037-1. (grades K-5) Math topics: math all around us.  
Summary: A boy wishes there is no math and dreams about a day with no math. Redoes the dream with math. Comparison made.

A Grain of Rice. Pittman, H.C. Bantam Skylark Book, NY. 1992. ISBN 0-553-15986-0. (grades 2-5) Math topics: counting, factorials. (See The King's Chessboard.)  
Summary: Story of the doubling of a grain of rice into great wealth and happiness.

Alexander, Who Used to be Rich Last Sunday. Viorst, J. Aladdin Books. NY. 1978. ISBN 0-689-71199-9. (grades 1-3) Math topics: money, subtraction.  
Summary: Although Alexander and his money are quickly parted, he comes to realize all the things that can be done with a dollar

Amanda Bean's Amazing Dream: A Mathematical Story. Neuschwander, C. Scholastic Press. NY. 1998. ISBN 0-590-30012-1. (grades 2-4)  
Math topic: multiplication  
Summary: Amanda loves to count everything, but not until she has an amazing dream does she finally realize that being able to multiply will help her count things faster.

A Million Fish...More or Less. McKissack, P.C. Alfred A. Knopf, Inc. NY. 1992. ISBN 0-679-80692-X. (grades 3-5) Math topics: numeration, estimation.  
Summary: A boy learns that the truth is often stretched on the Bayou Clapateaux and gets the chance to tell his own version of a bayou tale when he goes fishing.

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- Anno's Counting Book. Anno, M. Harper Collins Publishers. NY. 1992.  
ISBN 0-06-443123-1. (grades K-3) Math topic: numeration.  
Summary: Introduce counting and number systems by showing mathematical relationships in nature.
- Anno's Mysterious Multiplying Jar. Annos, M. & M. Philomel Books. NY 1982.  
ISBN 0-399-20951-4. (grade 5) Math topics: counting, multiplying, factorials.  
Summary: A counting story.
- Amazing Bats. Greenway, F. Alfred A. Knopf, Inc. NY. 1992. ISBN 0-679-81518-X.  
(grades 3-5) Math topics: graphing, coding, geography, mapping.  
Summary: Science book on all types of bats, their habitats, eating habits, etc.
- A Remainder of One. Pinczes, E.J. Houghton Mifflin Co. NY 1995. ISBN 0-395-69455-8  
(grades 3-5) Math topic: division.  
Summary: When the queen of bugs demands that her army march in even lines, Private Joe divides the marchers into more and more lines so that he will not be left out of the parade.
- Around and About Maps and Journeys. Petty, K. Barron's Educational Series. NY. 1993. ISBN 0-8120-1235-6. (grades 2-5) Math topics: mapping, graphing, geography.  
Summary: Harry measures his yard, maps the streets near his house, draws nearby landmarks, and finds out all about making and reading maps.
- A Three Hat Day. Geringer, L. Harper Collins Publications. NY. 1995.  
ISBN 0-06-443157-6. (grades 2-4) Math topics: counting, sorting.  
Summary: A hat collector has a very bad day until he meets his true love in the hat section of the department store.
- Arithmetic. Sandberg, C. Harthcourt Brace & Co. NY. 1993. ISBN 0-15-203865-5.  
(grades K-5) Math topic: numeration.  
Summary: An illustrated poem about numbers and their characteristics.
- The Bank Book: A Children's Introduction to Banks, Money, and Saving s. Cross, G.  
The Bowery Savings Bank. Printed by the Bowery Savings Bank not intended for commercial use. (grades 4 & 5) Math topics: money, percent.  
Summary: Discusses saving money, bank account interest, the history of banks.
- Bein' With You This Way. Nikola, L.W. Scholastic, Inc. NY. 1996. ISBN 0-590-80804-4  
(grades K-3) Math topic: patterns.  
Summary: Story about patterning: rhyming patterns, body movement patterns.

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- The Button Box. Reid, M.S. Penguin Group. NY. 1990. ISBN 0-14-055495-5.  
(grades Pre-K to 2) Math topics: counting, sorting, measurement.  
Summary: An imaginative little boy explores the many pleasures that can be found in ---and made from---his grandmother's button box.
- Caps for Sale. Slobodkina, E. Scholastic, Inc. NY 1968. ISBN 0-590-11080-6.  
(grades 1-3) Math topics: counting, sorting, systematic listing, arrays.  
Summary: A tale of a peddler, some monkeys, and their monkey business.
- Cherries and Cherry Pits. Williams, V.B. Scholastic, Inc. NY. 1986. ISBN 0-590-41238-8.  
(grades 1-3) Math topics: estimation, guess and check.  
Summary: Creative stories by a child who loves cherries. Estimate how many cherries and cherry pits.
- Chrysanthemum. Henkes, K. Mulberry Books. NY. 1996. ISBN 0-688-14732-7.  
(grades K-5) Math topics: counting, graphing, calculator usage.  
Summary: Chrysanthemum loves her name until she starts school and the other children make fun of it.
- Coat of Many Colors. Parton, D. Scholastic, Inc. NY. 1996. ISBN 0-590-89935-X.  
(grades K-3) Math topic: patterns.  
Summary: Story of a girl and the patchwork coat her mother makes for her.
- Counting Creatures. Peth, L. and Gallagher, R. Curriculum Associates, Inc. MA. 1991  
ISBN 1-55915-189-7. (grades K-2) Math topic: counting.  
Summary: A story about ten creatures of Halloween written in poem form; can be a song (music in back of book) with activity pages.
- Counting on Calico. Tildes, P.I. Scholastic, Inc. 1996. ISBN 0-590-74563-8.  
(grades 1-3) Math topic: counting.  
Summary: Counting by using different parts of a cat.
- Counting on Frank. Clement, R. Graeth Stevens Publishing. Milwaukee. 1991.  
ISBN 0-8368-0358-2. (grades 3-5) Math topics: counting, estimation, measurement.  
Summary: A boy and his dog present amusing counting, size comparisons,
- The Dinosaur Egg Mystery. Butter, M.C. Barron's Educational Series. NY. 1992.  
ISBN 0-8120-1379-4. (grades 1-3) Math topic: problem solving.  
Summary: Different dinosaurs claim a big white egg as their own until it hatches and they find out what was inside it.

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The Doorbell Rang. Hutchins, P. Scholastic, Inc. NY. 1986. ISBN 0-590-41109-8.  
(grades 2-4) Math topic: division.

Summary: Cookies are made for snack and each time the children get ready to eat the doorbell rings with more friends coming over. The snack needs to be shared differently each time.

Each Orange Has 8 Slices: A Counting Book. Giganti, Jr., P. Greenwillow Books. NY. 1992. ISBN 0-688-13116-6. (grades 1-4) Math topics: counting, addition.

Summary: An illustrated introduction to counting and simple addition.

Eating Fractions. McMillian, B. Scholastic, Inc. NY. 1991. ISBN 0-590-72732-X.  
(grades 2-3) Math topic: fractions.

Summary: A picture book on fractional parts of the whole (from the whole to fourths). Uses food to show fractions; recipes are in the back of the book.

The Eleventh Hour: A Curious Mystery. Base, G. Harry N. Abrams, Inc. NY. 1988.

ISBN 0-8109-0851-4. (grades 3-5) Math topics: critical thinking, problem solving.

Summary: An elephant's eleventh birthday party is marked by eleven games preceding the banquet of eleven dishes to be eaten at the eleventh hour, but when the time to eat arrives, the birthday feast has disappeared. The reader is invited to guess the thief.

Esio Trot. Dahl, R. Scholastic, Inc. NY 1990. ISBN 0-590-03178-3. (grades 3-5)  
Math topics: division, measurement.

Summary: Two elderly people, Mr. Hoppy and Mrs. Silver, talk to each other from their apartment balconies. Mr. Hoppy gives Mrs. Silver magic words to help her pet tortoise to grow. He keeps changing the tortoise for larger ones so she thinks the words are working. In the end, they marry, which is what Mr. Hoppy wanted.

The Giant Jam Sandwich. Lord, J.V. Houghton Mifflin Co. NY. 1972.

ISBN 0-395-44237-0. (grades K-5) Math topic: problem solving.

Summary: Story of a town covered by one million wasps and the problem of getting rid of them.

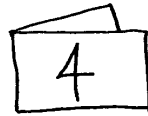
Grandfather Tang's Story: A Tale Told With Tangrams. Tompert, A.

Crown Publishers, Inc. NY. 1990. ISBN 0-517-57467-X.

(grades 2-5) Math topics: geometry, problem solving.

Summary: Grandfather tells a story about shape-changing fox fairies who try to best each other until a hunter brings danger to both of them.

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The Greedy Triangle. Burns, M. A Marilyn Burns Brainy Day Book. Scholastic, Inc. NY. 1994. ISBN 0-590-48991-7. (grades 2-5) Math topic: geometry.  
Summary: Dissatisfied with its shape, a triangle keeps asking the local shape-shifter to add more lines and angles until it doesn't know which side is up.

Hats, Hats, Hats. Morris, A. Lothrop, Lee and Shepard Books. NY 1989.  
ISBN 0-688-12274-4. (grades 2-4) Math topics: counting, sorting, multicultural.  
Summary: Introduces a variety of hats, from soft and hard hats to snugly and hooded hats. (Similar to A Three Hat Day.)

How Big Is A Foot? Myller, R. Dell Publishing. NY. 1990. ISBN 0-440-40495-9.  
(grades 1-3) Math topics: prediction, non-standard measurement, standard measurement.  
Summary: A story about measurement.

How Many Feet? How Many Tails? A Book of Math Riddles. Burns, M. Scholastic, Inc. NY. 1996. ISBN 590-67360-2. (grades 1 & 2) Math Topics: counting, critical thinking.  
Summary: As two children take a walk with their grandfather, they use their counting skills to help answer a series of animal riddles. Includes related activities.

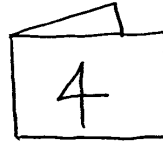
How the Second Grade Got \$8, 205.20 to Visit the Statue of Liberty. Zilelman, N. Albert Whitman & Co, Morton Grove, IL. 1992. ISBN 0-8075-3431-5.  
(grades 1-3) Math topics: money, predicting, problem solving.  
Summary: Chronicles the triumphs and setbacks of the second grade as they try a variety of schemes to raise money for a trip to the Statue of Liberty.

The 100<sup>th</sup> Day of School. Medearie, A.S. Scholastic, Inc. NY. 1996.  
ISBN 0-590-25944-X. (grades K-2) Math topics: counting, problem solving, graphing, coding.  
Summary: The children learn 100 spelling words, plant 100 seeds, bake 100 cookies, and "do everything the 100 way" to celebrate this special day.

The Hundred Dresses. Estes, E. Harcourt Brace & Co. NY. 1972.  
ISBN 0-15-237374-8. (grades 3-5) Math topic: numeration.  
Summary: In winning a medal she is no longer there to receive, a little Polish girl teaches her classmates a lesson.

The Hundred Penny Box. Mthis, S.B. Puffin Books. NY. 1975  
ISBN 0-14-032169-1. (grades 3-5) Math topics: numeration, time.  
Summary: Michael's love for his great-great aunt, who lives with them, leads him to intercede with his mother, who wants to toss out all the old things.

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If You Made a Million. Schwartz, D. Lothrop, Lee, and Shepard Books. NY. 1989. ISBN 0-688-07017-5. (grades 4 & 5) Math topics: money, problem solving, numeration, place value.  
Summary: Describes the various forms which money can take, including coins, paper money, and personal checks, and how it can be used to make purchases, pay off loans, or build interest in the bank.

Is a Blue Whale the Biggest Thing There Is? Wells, R. E. Albert Whitman & Co. Morton Grove, IL. 1993. ISBN 0-8075-3656-3. (grades 2-4)  
Math topics measurement, estimation.  
Summary: Illustrates the concept of big, bigger, biggest by comparing the physical measurements of large things as a blue whale, a mountain, a star, and a universe.

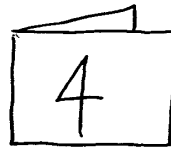
Sam Johnson and the Blue Ribbon Quilt. Ernst, L. C. Lothrop, Lee, and Shepard Books. NY. 1983. ISBN 0-688-11505-5. (grades 3-5) Math topic: patterning.  
Summary: While mending the awning over the pig pen, Sam discovers that he enjoys sewing the various patches together, but meets with scorn and ridicule when he asks his wife if he could join her quilting club.

Jumanji. Singer, A. L. Scholastic, Inc. NY. 1995. ISBN 0-590-543551-5. (grades 3-5) Math topic: probability.  
Summary: Jumanji is a very unusual game. That's what Alan Parrish discovered when he played the game and disappeared! Now 26 years later, Peter and Judy Shepard play Jumanji and the strange magic begins again. When they meet up with Alan Parrish, the three of them must find a way to finish the game once and for all.

June 29, 1999. Wiesner, D. Clarion Books. NY. 1992. ISBN 0-395-59762-5. (grades 3-5) Math topics: measurement, estimation, fractions, calendar, size relationships, large numbers, weight, place value, money, counting, graphing, operations.  
Summary: While her third grade classmates are sprouting seeds in paper cups, Holly has a more ambitious, innovative science project in mind

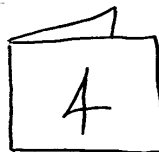
The King's Chessboard. Birch, D. Penguin Group. NY. 1988. ISBN 0-14-054880-7. (grade 4 & 5) Math topics: counting, factorials.  
Summary: The King insists that the wise man be paid for the service he has done for the King. The wise man finally agrees and asks for a grain of rice on the corner square of a chessboard. Each day the rice will be doubled until all the squares have been used. (See A Grain of Rice.)

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- The King's Commissioners. Friedman, A. A Marilyn Burns Brainy Day Book. Scholastic, Inc. NY. 1994. ISBN 0-590-48989-5. (grades 3-5)  
Math topics: counting, numeration, multiplication, use of a tally chart.  
Summary: While trying to keep track of his many royal commissioners, the king learns some new ways of counting.
- Knots on a Counting Rope. Martin, Jr., B. and Archambault, J. Henry Holt & Co. NY. 1966. ISBN 0-8050-2955-9. (grades 2-5) Math topic: elapsed time.  
Summary: Boy-Strength-of-Blue-Horse and his grandfather reminisce about the young boy's birth, his first horse, and an exciting horse race.
- Let's Tell Time (A First Start Easy Reader). Getzoff, M. Troll Associates. NY. 1996. ISBN 0-8167-3854-8. (grades K-2) Math topics: time, organizing.  
Summary: Puppy uses the clock to define his day.
- (Read About) Me and the Counting Robot. Cluff, B. Me-Books Publishing Co. Burbank, CA. 1994. ISBN 0-915058-24-3. (grades 1-3) Math topic: counting.  
Summary: A story about a counting machine and how large numbers can get.
- Maps and Mapping. Taylor, B. Kingfisher Books. NY. 1993. ISBN 1-856978-936-9. (grades 3-6) Math topics: mapping, paths, problem solving, geography.  
Summary: Explains what maps are and why they are used, introduces symbols found on maps, and describes how cartographers map the world. Includes related activities
- Marti and the Mango. Moreton, D. Stewart, Tabori & Chang. NY. 1993. ISBN 1-55670-264-7. (grades 1-5) Math topic: problem solving.  
Summary: With the help of his animal friends, Marti the Mouse learns to distinguish a mango from other tropical fruit.
- The Math Curse. Scieszka, J. and Smith, L. Penguin Press. NY. 1995. ISBN 0-670-861944. (grades 4-8) Math topics: various topics.  
Summary: When a teacher tells her class that they can think of almost anything as a math problem, one student acquires a math anxiety which becomes a real curse.
- Math Mysteries Book. Silbert, J. Scholastic, Inc. NY. 1995. ISBN 0-590-60337-X. (grades 3-5) Math topics: various topics.  
Summary: A collection of short stories with problem solving activities.

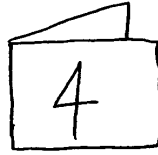
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- The Milk Makers. Gibbons, G. Scholastic, Inc. NY. 1985. ISBN 0-590-45964-3.  
(grades 4-6) Math topics: problem solving, measurement.  
Summary: The complete story of how we get milk from animal to the store.
- Moja Means One: Swahili Counting Book. Feeliongs, M. Dial Books for Young Readers.  
NY. 1971. ISBN 76-134856. (grades 1-3) Math topic: counting.  
Summary: Counting items in the Swahili language.
- Monster Math. Maccarone, G. Scholastic, Inc. ISBN 0-590-22712-2. (grades 1 & 2)  
Math topics: counting, problem solving.  
Summary: Rhyming text and illustrations follow the activities of twelve monsters that diminish one by one. Includes a section of counting activities.
- The Napping House. Wood, A. Harcourt Brace & Co. NY. 1984. ISBN 0-15-256708-9.  
(grades K-5) Math topics: numeration, sequencing.  
Summary: In this cumulative tale, a wakeful flea atop a number of sleeping creatures causes a commotion, with just one bite.
- Neighborhood Soup. Nelson, J. Modern Curriculum Press. NY. 1990.  
ISBN 0-8136-4270-1. (grades K-3) Math topic: measurement.  
Summary: Story about cooking and measurement.
- Nine O'Clock lullaby. Singe, M. Scholastic, Inc. NY. 1991. ISBN 0-590-47185-6.  
(grades 2-3) Math topic: time.  
Summary: Story about time around the world.
- ...98, 99, 100! Ready or Not, Here I Come! Slater, T. Scholastic, Inc. NY. 1999.  
ISBN 0-590-12009-3. Math topic: counting, number and numeration.  
Summary: Three friends play hide-and-seek, varying the way they count to 100 in each game: by ones, fives, tens, and twenties. Includes related activities by Marilyn Burns.
- The Patchwork Quilt. Flournoy, V. Dial Books for Young Readers. NY. 1985.  
ISBN 0-8037-0097-0. (grades 2-5) Math topic: patterns.  
Summary: Using scraps cut from the family's old clothing, Tanya helps her grandmother make a beautiful quilt that tells a story of her family's life.
- One Hundred Hungry Ants Pinczes, E. J. Houghton Mifflin Co. NY. 1993.  
ISBN 0-395-63116-5. (grades 2-5) Math topics: numeration to 100, multiplication/division using arrays.  
Summary: One hundred hungry ants head towards a picnic to get yummie for their tummies, but stops to change their line formation, showing different divisions of 100, cause them to loose both time and food in the end.



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One Hundred Is a Family. Ryan, P.M. Hyperion Paperbacks for Children. NY. 1994  
ISBN 0-7868-1120-X. (grades K-2) Math topics: counting, numeration.  
Summary: Groups making up many different kinds of “families” introduce numbers from 1-10 and then by tens to 100.

On the Day You Were Born. Frasier, D. Harcourt Brace & Co. NY. 1991.  
ISBN 15-257995-8. (grades 4 & 5) Math topics: time, calendar, weather, measurement.  
Summary: The earth celebrates the birth of a newborn baby.

The Phantom Tollbooth. Juster, N. Random House, Inc. NY. 1996.  
ISBN 0-394-82037-1. (grades 3-5) Math topics: time, problem solving, critical thinking.  
Summary: For Milo, everything’s a bore. When a tollbooth mysteriously appears in his room, he drives through only because he’s got nothing better to do. But on the other side, things seem different. Milo visits the island of Conclusions (you get there by jumping), learns about time from a ticking watchdog named Tock, and even embarks on a quest to rescue Rhyme and Reason! Somewhere along the way, Milo realizes something astonishing. Life is far from dull. In fact, it’s exciting beyond his wildest dreams!

Piggies. Wood, A. Harcourt Brace & Co. NY. 1991. ISBN 0-15-200291-X.  
(grades Pre-K to 1) Math topic: counting.  
Summary: Story of 10 little piggies dancing on a young child’s fingers and toes before finally going to sleep.

Pigs Will Be Pigs: Fun With Math and Money. Axelrod, A. Simon and Schuster Books for Young Children. NY. 1994. ISBN 0-02-765415-X. (grades 3-5)  
Math topics: money, finance.  
Summary: The hungry Pig family learns about money and buying power as they turn the house upside down looking for enough money to buy dinner at the local restaurant.

The Sesame Street Treasure. Children’s Television Workshop. Funk and Wagnells Inc. 1983. ISBN 0-8343-0052-4. (grades Pre-K to 1) Math topics: counting, numeration, problem solving.  
Summary: Set of books with stories and counting activities.

Seven Blind Mice. Young, E. Scholastic, Inc. 1992. ISBN 0-590-46971-1.  
(grades K-2) Math topics: prediction, problem solving.  
Summary: Seven blind mice try to figure out the object in their path.

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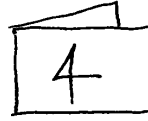
- 17 Kings and 42 Elephants. Mahy, M. Dial Books for Young Readers. NY. 1987.  
ISBN 0-8037-0458-0. (grades 2-4) Math topics: prediction, problem solving, counting, patterns.  
Summary: 17 Kings and 42 Elephants romp with a variety of jungle animals during their journey through a wet, wild night.
- The Silly Story of Goldie Locks and the Three Squares. Maccarone, G. Scholastic, Inc. 1996. ISBN 0-590-54344X. (grades K-2) Math topic: geometry.  
Summary: A modern descendant of the Goldilocks of folklore fame makes a similar visit to a stranger's house—with a geometric twist.
- Sir Cumference and the Dragon of Pi: A Math Adventure. Neuschwander, C. Charlesbridge Publishing. Watertown, MA. 1997. ISBN 1-57091-164-9. (grades 3-8) Math topic: geometry  
Summary: When Sir Cumference drinks a potion that turns him into a dragon, his son Radius searches for the magic number known as pi which will restore him to his former shape.
- Sir Cumference and the First Round Table. Neuschwander, C. Scholastic, Inc. NY. 1998. ISBN 0-590-00215-5. (grades 3-6) Math topics: properties of a circle, geometry, problem solving.  
Summary: A story about Sir Cumference and his family and the role they played in forming the first round table.
- Stories to Solve: Folktales from Around the World. Shannon, G. Greenwillow Books. NY. 1985. ISBN 0-688-04303-8. (grades 3-5) Math topics: problem solving, critical thinking.  
Summary: Brief folktales in which there is a mystery or problem that the reader is invited to solve before the resolution is presented.
- Tatum's Favorite Shape. Thole, D. Scholastic, Inc. NY. 1977. ISBN 0-590-11905-2. (grades Pre-K to 2) Math topic: geometry.  
Summary: Story about a young boy learning the different shapes.
- Tikki Tikki Tembo. Mosel, A. Henry Holt & Co. NY. 1968. ISBN 0-8050-2345-3. (grades 1-4) Math topics: problem solving, patterns.  
Summary: Story of a boy and his family. A Chinese folktale.
- Times Flies. Parkerr, J. Rigby, Inc. NY. 1992. ISBN 0-7901-0552-7. (grades 3-6) Math topics: time, calendar.  
Summary: The history of how we learned to tell time, how clocks and calendars were invented.

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- Three Days on a River in a Red Canoe. Williams, V.B. Scholastic, Inc. NY. 1981.  
ISBN 0-590-45985-6. (grades 3-6) Math topics: measurement, time, geometry, mapping.  
Summary: A family goes on a canoe trip down river.
- 12 Ways to Get to 11. Merriam, E. The Trumpet Club, Inc. NY. 1993.  
ISBN 0-440-83115-6. (grades Pre-K to 1) Math topic: counting.  
Summary: Different ways of counting to eleven.
- Two of Everything. Hong, L.T. Albert Whitman & Co. Morton Grove, IL. 1993.  
ISBN 0-8075-8157-7. (grades 1-5) Math topic: doubling.  
Summary: A poor old Chinese farmer finds a magic brass pot that doubles or duplicates whatever is placed inside it, but his efforts to make himself wealthy lead to unexpected complications.
- Two Ways to Count to Ten. Dee, R. Henry Holt & Co. NY. 1988. ISBN 0-8050-1314-8  
(grades 2-4) Math topic: counting.  
Summary: A retelling of a traditional African tale in which King Leopard invites all the animals to a spear-throwing contest whose winner will marry his daughter and succeed him as king.
- What Comes in 2's, 3's, & 4's? Aker, S. Simon and Schuster Books for Young Readers. NY. 1990. ISBN 0-671-79247-4. (grades Pre-K to 1) Math topics: counting, numeration.  
Summary: Introduces the numbers 2,3, and 4 by enumerating the ways in which they occur in every day life, from your 2 eyes and 2 arms to the 4 seasons of the year.
- Where the Sidewalk Ends. Silverstein, S. Harper Collins Publishers. NY. 1974.  
ISBN 06-025667-2. (grades K-6) Math topics: money, time, measurement, prediction, estimation, problem solving.  
Summary: Poems about how children perceive the world.
- You Are Here: A First Book of Places. Berenstain, M. A Golden Book. Western Publishing Co. NY. 1991. ISBN 0-307-11573-9. (grades 2-5)  
Math topics: geography, mapping.  
Summary: Two children discuss the various landmarks of their town. Then they take a helicopter ride around the world.

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- Sheffield, Stephanie. *Math and Literature (K-3), Book Two*. Sausalito, CA: Math Solutions Publications. 1995.