This bibliography serves as a guide to teachers and librarians who want to select books to supplement the elementary school mathematics program. The selections give an indication of the wide variety of topics which may include mathematical concepts. They reinforce or develop concepts about number and size, present material on the application of these understandings, or delve into the history and theory of mathematics. A short annotation is given for most entries. (JP)
BOOKS THAT COUNT

The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Albany, New York 12224
THE UNIVERSITY OF THE STATE OF NEW YORK

Regents of the University (with years when terms expire)

1984 Joseph W. McGovern, A.B., J.D., L.H.D., LL.D., D.C.L.,
   Chancellor - - - - - - - - - - - - - - - - - - - - - - - - - - - New York
1985 Everett J. Sexson, B.C.S., D.C.S.,
   Vice Chancellor - - - - - - - - - - - - - - - - - - - - - - - - - - - White Plains
1978 Alexander J. Allan, Jr., LL.D., Litt.D. - - - - - - - - - - - - Troy
1975 Edward M. M. Warburg, B.S., L.H.D. - - - - - - - - - - - - - - New York
1977 Joseph T. King, LL.B. - - - - - - - - - - - - - - - - - - - - Queens
1974 Joseph C. Indelicato, M.D. - - - - - - - - - - - - - - - - - - - - Brooklyn
1976 Mrs. Helen B. Power, A.B., Litt.D., L.H.D., LL.D. - - - - Rochester
1979 Francis W. McGinley, B.S., J.D., LL.D. - - - - - - - - - - - - - - Glens Falls
   on Hudson
1983 Harold E. Newcomb, B.A. - - - - - - - - - - - - - - - - - - - - Owego
1981 Theodore M. Black, A.B., Litt.D. - - - - - - - - - - - - - - Sands Point
1988 Willard A. Genrich, LL.B., L.H.D. - - - - - - - - - - - - - - Buffalo
1982 Emlyn I. Griffith, A.B., J.D. - - - - - - - - - - - - - - - - Rome

President of the University and Commissioner of Education
Ewald B. Nyquist

Executive Deputy Commissioner of Education
Gordon M. Ambach

Deputy Commissioner for Elementary, Secondary, and Continuing Education
Thomas D. Sheldon

Associate Commissioner for Instructional Services
William L. Bitner

Assistant Commissioner for Instructional Services (General Education)
Bernard F. Haako

Director, Division of School Supervision
Gordon E. Van Hooft

Director, Division of General Education
Ted T. Grenda

Chief, Bureau of Mathematics Education
Frank S. Hawthorne

Chief, Bureau of Elementary Curriculum Development
Robert H. Johnstone

Chief, Bureau of School Libraries
Lore Scurrah
This bibliography has been prepared to aid teachers and librarians in selecting books to supplement the elementary school mathematics program. While these books have been carefully chosen, this list is intended to serve only as a guide. The selections give an indication of the wide variety of topics which may include mathematical concepts. Since there are undoubtedly worthwhile titles not listed here, teachers and school librarians are encouraged to augment this list with other titles with which they may be familiar and to seek out additional materials already on hand or recommended elsewhere on similar topics.

The books listed incorporate mathematical principles. They reinforce or develop concepts about number and size, present material on the application of these understandings, or delve into the history and theory of mathematics. They are books which children enjoy and which support the mathematics program.

The bibliography has been divided into three sections. The primary section consists of picture books and easy-to-read books that involve simple mathematical ideas. Books on the intermediate level require greater reading ability and deal with more complex mathematics. The final listing presents titles for the more mathematically oriented student.

In this era of rapid change, the prices and availability of titles may change. However, the list may be used for ordering purposes with the understanding that some changes may have occurred.

These books are not available from the New York State Education Department. Orders should be placed with your regular jobber or with the publisher.

The manuscript was prepared by Dorothy N. Chillrud, School Librarian, Guilderland Central School District and John J. Sullivan, Associate in Mathematics Education for the Bureaus of Elementary Curriculum Development, Mathematics Education, and School Libraries.
USING THE LIBRARY FOR MATHEMATICS EDUCATION

Most people are not accustomed to reading mathematics books for recreation and enjoyment. This may be the major reason why teachers do not urge school librarians to develop a rich collection of mathematics books, nor urge students to use such collections. Yet hundreds of attractive and enjoyable mathematics books exist and new ones appear every month. Many of these were written by outstanding mathematics educators whose major concern was to clothe important mathematical concepts in readable, colorful language and attractive illustrations that would catch and hold the interest of children.

Encouraging children to read mathematics books may not be a serious problem at the primary level. The books written for children at this level are so colorful and appropriate that children reading them do not realize that they are reading mathematics.

At the intermediate level much more needs to be done to encourage students to read the mathematics books in school libraries. Teachers can enrich their lessons by asking students to investigate and report to the class on topics that relate to the mathematics program.

1. During the study of a unit on triangles, some students could investigate "Pythagoras," "Pascal," and "triangular numbers," to name just a few topics.
2. During the study of addition of whole numbers, some students could investigate "Fibonacci numbers" and "magic squares."

Elementary school children love puzzles, tricks, and games. There are many books from the field of recreational mathematics that can inject fun into the mathematics program. This kind of mathematics gives children a chance to develop problem-solving skills.

Teachers will find a great deal of help available from their state and national mathematics associations, including their official journals. The Association of Mathematics Teachers of New York State (AMTNY) publishes the New York State Mathematics Teachers' Journal. Individual dues are $5/yr. Institutional dues are $6/yr. Dues, payable to Treasurer, AMTNY, or requests for information may be sent to the Bureau of Mathematics Education, State Education Department, Albany, New York 12224. The NCTM publishes The Arithmetic Teacher eight times a year for $9 individual dues or $10 institutional dues. Write to the National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091. NCTM also will send a list of current publications, many of which may be helpful at the elementary level.
BOOKS THAT COUNT

For the Primary Grades

Adler, Irving and Ruth. Sets and numbers for the very young. Day. 1969. PLB $3.96; pa. $2.40
A workbook format on very elementary math concepts with plenty of illustrations but a substantial reading vocabulary.

Atwood, Ann. The little circle. Scribner. 1967. $5.95.
An adventure fantasy with beautiful photography develops the concept of a circle. Be aware that the first page statement, "A zero is nothing mathematically speaking, is not so.

Emile's shopping tour for seven uncles provides an amusing story.

Bold, striking colors appeal to children in this adding and subtracting story.

Aulaires, Ingri and Don. Don't count your chicks. Doubleday. 1943. $4.05; PLB $7.75 extra.
An old lady counts eggs and money and makes use of the concept of ideas while dreaming of more chickens, eggs, and money.

Baner, Angela. One, two, three, with ant and bee: a counting story. Watts. 1959. $1.95.

Barr, Catherine. Seven chicks missing. Walck. 1962. $3.75.
Story of a mother grouse who loses one chick after another while taking her brood walking.

Rhythmic prose helps preschoolers learn numbers and the days of the week.

Behn, Harry. All kinds of time. Harcourt. 1950. $3.25.
Poetic book about clocks, time, and the seasons.

Beim, Jerrold. The smallest boy in the class. Morrow. 1949. $3.94.
Concepts of comparison developed through terms such as big, biggest, small, smallest, etc.
Bendick, Jeanne. All around you. McGraw. 1951. $3.75.
Science picture book about numbers and measurement describes the why and how of the world around us with simple pictures and vocabulary.

For general background as this book explains the operation and uses of the computer in very broad terms and fairly simple language. The enthusiastic presentation may lead some readers to expect more than is possible with computers.

Berkley, Ethel. Big and little, up and down: early concepts of size and direction. Young Scott. 1960. $3.75.
A combination and revision of two earlier titles.

Saving pennies to buy Christmas presents for her five sisters, a little girl has to decide how much to save for each gift.

Bishop, C. H. Five Chinese brothers. Coward. 1938. $3.95; PLB $3.64.
An all time favorite. Useful in developing ideas of cardinal and ordinal numbers.

Blegvad, Lenore and Blegvad, Erik. One is for the sun. Harcourt. 1964. $3.50.
Lovely pictures and simple rhymes evoke a delightful mood while also presenting the numbers 1 to 10 and the millions. Some may want help finding the items counted.

Blough, G. O. Wait for the sunshine; the story of seasons and growing things. McGraw. 1934. $3.95; PLB $3.83.
Contains many ideas of measurement and comparison as well as cardinal and ordinal numbers.

Braddon, L. J. Tell me the time, please. Lippincott. 1936. PLB $3.59.

Branley, F. M. Big tracks, little tracks. Crowell. 1960. $3.75.
(Let's read and find out books)
Size and comparison are illustrated through tracks of insects, animals, birds, and human beings.

(A read alone book)
Nicky learns the value of money.
Useful to help strengthen a youngster's ability to count, recognize and compare groups.

Budney, Blossom. *A kiss is round.* Lippincott. 1954. $3.94.
Familiar objects which are round are described in picture and verse.

PLB $4.40.

This humorous story about eating large numbers of pancakes conveys ideas of size, position, comparison, and measurement.

Although the informal approach does not distinguish carefully between plane and solid figures, the laboratory exercises can give the pupil a feel for the ellipse and its relation to the circle and other conics.

Chorus, Marnie. *Mathematical games for one or two.* Crowell. 1972. $3.75.
(A young math book)
Simplified versions of some classical math games easily followed.

Colman, Hila. *Watch that watch.* Morrow. 1962. $3.94.
A "fun" story useful for impressing the child with the importance of time in everyday life.

A simple story that uses picture words and both English and Mohawk Indian words to count from 1 to 10.

Large black dots are incorporated into vivid, simplified objects and described with short rhymes to illustrate the numbers 1 to 10.

Dennis, J. Richard. *Fractions are parts of things.* Crowell. 1971. $3.75. (A young math book)
A very pronounced effort to provide visual models for a few unit fractions.

Dodge, Bertha S. *Big is so big.* Crowell. 1972. PLB $3.49.
Whimsical but basically sound presentation of simple linear measurement, area and volume beginning with a child-invented unit of measurement.
Counting ducklings, days of the week, and weeks in the month provides practice with cardinal and ordinal numbers.

Rhymed introduction to numbers from 1 to 20.


A funny favorite makes use of cardinal and ordinal numbers.

Everson, Dale. Mrs. Popover goes to the zoo. Morrow. 1963. $3.78.
Mrs. Popover loses 24 children and then finds them again in this amusing, illustrated counting book.

Counting from 1 to 10 in Swahili along with drawings of East African scenes and simple English text to depict the number concept with elements of African culture.

Fey, James T. Long, short, high, low, thin, wide. Crowell. 1971. $3.75. (A young math book)
A very elementary introduction to basic concepts of linear measurement including a brief account of linear metric units of measure.

Not a counting book, but a supplement to the study of what numbers are and how they work; an introduction to the basic theory of numbers.

Fletcher, Helen Jill. Puzzles and quizzes. Abelard-Schuman. 1971. $3.75; PLB $3.59.
A variety of interesting questions with pictures - some easy, some more difficult - plus solutions. Note: these are not necessarily the only correct answers.

Basic shapes (plane and solid) are clearly drawn and explained with simple language and everyday examples. There are some dubious (mathematically imprecise, incorrect) statements but the pluses far outweigh the minuses.
Frishey, Margaret.  
Chicken Little, count-to-ten.  
Childrens Press.  
1946.  
PLB $3.75.  
Chicken Little meets animals in groups of 1 through 10 identifying the number in each group.

The mystery of the farmer's three fives.  
Childrens Press.  
1963.  
PLB $3.75.  
The number concept of few and many, and of relative size groupings using barnyard animals as the units.

Seven diving ducks.  
Hale.  
1940.  
PLB $2.34.  
Gag, Wanda.  
Millions of cats.  
Coward.  
1929.  
$3.50; PLB $3.29.  
This picture book classic provides readiness for large numbers — hundreds, thousands, millions — and includes concepts of around, ver, through, etc.

Froman, Robert.  
Bigger and smaller.  
Crowell.  
1971.  
$3.75.  
(A young math book)  
Explains and illustrates many, many examples of things being bigger or smaller.

Crowell.  
1972.  
$3.75.  
See listing in intermediate section.

Geisel, T. S.  
McElligot's pool.  
by Dr. Seuss, pseud.  
Random House.  
1947.  
$3.50; PLB $4.19.  
Delightful nonsense animals convey the idea of number, comparison, shape, size, length and height.

One fish, two fish, red fish, blue fish.  
by Dr. Seuss, pseud.  
Random House.  
1960.  
$2.50; PLB $3.07.

Ten apples up on top.  
by Theo. LeSieg, pseud.  
Random House.  
1961.  
$2.50; PLB $3.07.

Grayson, N. F.  
Let's do fingerplays.  
Luce.  
1962.  
$5.50.  
A useful resource book for teachers, this fine collection of fingerplays makes learning numbers and counting fun.

Gregor, Arthur.  
1, 2, 3, 4, 5, verses.  
Lippincott.  
1956.  
$3.50.  
A counting book in rhyme.

Hawkinson, Lucy.  
That new river train.  
Albert Whitman.  
1970.  
$3.25.  
Counting 1 to 10 with charming pictures and words for the folk-song that begins: "Jenny, you can't love one."

Hegensbaugh, Jane.  
I live in so many places.  
Childrens Press.  
1956.  
PLB $3.95.  
Useful in developing relative position.
Hoban, Tana. Count and see. Macmillan. 197'. $4.95.
Numerals, number words, dots and vivid photographs develop
number concepts-by ones to fifteen, and by tens to one hundred.
Vocabulary of only number words makes this usable for independ-
ten drill on number concepts and representations by the very
young.

Hobesman, M. A. All my shoes come in twos. Little. 1957. $3.95.
Rhyming story about all kinds of shoes uses the idea of "two"
over and over.

A humorous, simple story that solves the problem of which clock
is correct when each seems to tell a different time. Should be
particularly interesting to children learning to tell time.

Ipeiia, Dahlov. Brown cow farm. Doubleday. 1959. $3.95; PLB
$1.75 extra.

A vocabulary of companions-big, bigger, tall, long, etc., is
included in this story of a child growing old enough to start
school and do things older children do.

Kay, Helen. One mitten Lewis. Lothrop. 1955. $3.94.
Pair, both, one, each, first, and next are ideas expressed in
this humorous story of a little boy who always loses one mitten.

$3.95; PLB $3.79.
Everyday experiences are used to explain concepts of time from
a second to a year.

Kohn, Bernice. Everything has a shape and everything has a size.
Prentice-Hall. 1966. $4.75.
Two earlier titles revised into one book. Designed to develop
the concepts of shape and comparative sizes of things.

Krasilovsky, Phyllis. The very little boy. Doubleday. 1962. $3.95;
PLB $1.75 extra; pa. $1.95.
Concepts of relative size and growth are basic to this pleasant
story.

Krasilovsky, Phyllis. The very little girl. Doubleday. 1953. $3.95; PLB $1.75
extra; pa. $1.95.
Pictures depicting ratio and proportion add to the value of
this story.

Kruss, Janes. 3 x 3. Three by three. Macmillan. 1965. $3.95; PLB $3.74. pa. $.95.
Appealing adventures by groups of three for early primary children.

Langstaff, John. Over in the meadow. Haccourt. 1957. $4.95; pa. $1.25.
Groups of 1 to 10 in a beautifully illustrated picture book based on a folk song.

Leaf, Munro. Arithmetic can be fun. Lippincott. 1969. $2.95.

An informative book using terms regarding number, position, comparison, and measurement.

Linn, Charles F. Estimations. Crowell. 1970. $3.75; pa. $.95.
(A young math book)
Many suggested activities and examples.


Cookbooks provide excellent practice with many math concepts - fractions, measures, etc.

Poems about time.

A little boy counts and recounts an odd assortment of animals in his bathtub.

Marino, Dorothy. Edward and the boxes. Lippincott. 1957. PLB $3.79
A variety of different size boxes provide homes for animal pets.

Attractive two-color drawings and a simple story of a cat's adventure with the contents of a box introduce the numerals 1 through 10.
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Publisher</th>
<th>Year</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merrill, Jean and Scott, Frances Gruse</td>
<td>How many kids are hiding on my block?</td>
<td>Albert Whitman</td>
<td>1970</td>
<td>$3.75</td>
<td>A hide-and-seek game in an urban setting that naturally involves number concepts and combinations as 10 children are gradually found.</td>
</tr>
<tr>
<td>Myller, Rolf</td>
<td>How big is a foot?</td>
<td>Atheneum</td>
<td>1962</td>
<td>$3.62; pa. $0.95</td>
<td>Nonsense story pointing up need for standard measurement.</td>
</tr>
<tr>
<td>Nic Leodhas, Sorche</td>
<td>All in the morning early.</td>
<td>Holt</td>
<td>1963</td>
<td>$3.50; PLB $3.27; pa. $1.65</td>
<td>The concept of groups of things is inherent in this story version of an old Scottish ballad.</td>
</tr>
<tr>
<td>O'Brien, Thomas C.</td>
<td>Odds and evens.</td>
<td>Crowell</td>
<td>1971</td>
<td>$3.75</td>
<td>Quite a nice, easy discussion with helpful illustrations of a topic important in mathematics - odd and even numbers.</td>
</tr>
<tr>
<td>Papy, Georges, and Frédérique</td>
<td>Graph games.</td>
<td>Crowell</td>
<td>1971</td>
<td>$3.75</td>
<td>Nice development of one-to-one and one-to-many relationships.</td>
</tr>
<tr>
<td>Peppe, Rodney</td>
<td>Circus numbers.</td>
<td>Delacourte</td>
<td>1969</td>
<td>$3.95</td>
<td>Preschool and beginning primary counting book illustrated with vivid circus animals and performers for the numbers 1 through 10, 20, and 100.</td>
</tr>
<tr>
<td>Phillips, Jo</td>
<td>Right angles: paper-folding geometry.</td>
<td>Crowell</td>
<td>1972</td>
<td>$3.75</td>
<td>An excellent laboratory (activities) approach to the geometry of figures containing right angles.</td>
</tr>
<tr>
<td>Schatz, Letta</td>
<td>When will my birthday be?</td>
<td>McGraw</td>
<td>1962</td>
<td>$3.95</td>
<td>Concept of time is developed as Benjy must wait through the seasons to be one year older.</td>
</tr>
<tr>
<td>Schlein, Miriam</td>
<td>City boy, country boy.</td>
<td>Childrens Press</td>
<td>1955</td>
<td>PLB $3.95</td>
<td>Concepts of time, size, position and numbers.</td>
</tr>
<tr>
<td>Fast is not a ladybug</td>
<td>Young Scott.</td>
<td></td>
<td>1953</td>
<td>$3.75</td>
<td>Concepts of &quot;fast&quot; and &quot;slow&quot; become more meaningful.</td>
</tr>
</tbody>
</table>
Heavy is a hippopotamus. Young Scott. 1954. $3.75.
Develops an understanding of weights and measures and shows relative ways of thinking about some familiar objects. Teachers should clarify the expression that measurement is "another way to count things" as well as point out that measurement is not exact.

It's about time. Young Scott. 1955. $3.75.
Verse and pictures develop concepts of time in relation to seconds, minutes, hours, days, seasons, etc. Since measurement is not exact, teachers should clarify the expression "exact time."

Shapes. Young Scott. 1962. $3.75.
Develops an awareness of form, shape and design. Teachers must clarify the statement, "a straight line can have an end."

Schneider, Herman. How big is big?: from stars to atoms. Young Scott. 1948. $3.95.


What time is it, Jeanne-Marie?, by Francois, pseud. Scribner. 1963. $5.95.


See listing in intermediate section.

A succession of definitions stated accurately, but still a dull business. Also suggestions for making polygons and for constructing a clockboard on which to make others.

What is symmetry? Crowell. 1970. $3.75; pa. $0.95. (A young math book)
Well illustrated, verbally and pictorially.
   Full-page color illustrations, with accompanying rhyming text, depict millions of various objects in the world.
   One is good, but two are better. Vanguard. 1956. $4.50.
   Examples of activities in which two can play better than one.

Smith, Donald. Farm numbers. Abelard-Schuman. 1970. $3.95; PLB $3.87.
   Colorful, simple farm animals, by themselves and again in a farm setting, illustrate the numerals 1 to 10 using only the word numbers for vocabulary.

   Amusing picture book with multiple examples to illustrate 27 pairs of opposites involving concepts of size, speed, spatial relations, quantity, texture and temperature.

   See listing in intermediate section.

   Weighing and Balancing. Crowell. 1970. $3.75; pa. $95. (A young math book)
   Lots of activities for balancing concepts moving into the idea of weight.

Stanek, Muriel. One, two, three for fun. Albert Whitman. 1967. $3.25.
   Children's everyday activities are used to develop number concepts - one to five and many - with emphasis on successor; i.e., three and one are four.

Thaler, Mike. Penny pencil. Harper. 1963. $3.27.
   Adventures of a pencil as she grows smaller and smaller.

   Directions for writing the number symbols from 1 to 10 given in verse.

Tudor, Tasha. Around the year. Walck. 1957. $4.25.
   I is one. Walck. 1956. $4.25.

Ungerer, Tomi. One, two, where's my shoe? Harper. 1964. $3.53.
   Picture book based on concepts of form and design.

   Snail, where are you? Harper. 1962. $3.53.
   Basic book of design shows the snail in many places.
A poem for each month catches the mood of the changing seasons.

Vogel, Ilse-Margaret. I is fun, but 20 is plenty. Atheneum. 1965.
$3.25; PLB $3.07; pa. $.95.
Counting book with amusing adventures in rhyme involving a lion and hippo.

Book about concept of numbers. Describes range of uses from counting change to scientific applications.

Story of the history of time and why we divide our time into days, seasons, and years.

Annie learns that a dollar bill is equal to 2 half-dollars, 4 quarters, 10 dimes, 20 nickels, or 100 pennies.

Meaning of numbers from 1 to 10.


PLB $3.75.
Teachers can also use the pictures to illustrate some very elementary aspects of informal geometry.

Wolff, Janet and Owett, Bernard. Let's imagine numbers! Dutton. 1964. $4.50. (An imagination book)

Wolley, Catherine. Sandy and the seventeen balloons, by Jane Thayer, pseud. Morrow. 1955. $3.95.

Yolen, J. H. See this little line? McKay. 1963. $3.50.
An introduction to drawing lines.

Developing number concepts from 1 to 12.


Zolotow, Charlotte. One step, two... Lothrop. 1955. $3.94.
A mother and child count their steps as they take a walk.

———. Over and over. Harper. 1937. $3.95.
Shows the passage of a year through seasonal events.
For the Intermediate Grades

PLB $3.96. (The "reason why" books)
The concept of integers is cleverly illustrated by keeping score in a variety of games. Mostly addition of positive and negative integers with a small section on subtraction.

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$3.96. (The "reason why" books)

PLB $3.96. (The "reason why" books)
Textbook-like discussion of angles, with many definitions.
Most suitable for the enthusiastic student.

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Excellent enrichment material.

Andrews, F. E. Numbers, please. Little. 1961. $3.75.
Book about number language which uses the digits.

$3.75.
Extremely clear directions make this an unusual book of its type.

A billy goat introduces binary and decimal number systems, the four arithmetic processes and the properties of associativity and commutativity.

Belting, Natalia. Calendar moon. Holt. 1964. $4.27.
A poetic almanac, based on legends from many times and places.

Treats time as a dimension showing its relationship to space and motion and describes important features of the Einstein Theory of Relativity.

Historical background and modern application of weights and measures.

A multitude of suggestions for research projects can be discovered by just thumbing through the pages. Also useful in providing explanations, leads, and hints.
Take a number: new ideas plus imagination = more fun.
McGraw. 1961. $2.75.
Facts, ideas, and puzzles explain numbers from finger counting to computers.

Useful is a supplement to mathematics in upper elementary grades.

PLB $5.70. (Life science library)

See listing in primary section.

PLB $3.39.
An elementary history of the measurement of time.

Brindze, Ruth. The story of our calendar. Vanguard. 1959. $4.50.
Information about different types of calendars developed through the ages.


Carona, P. B. Things that measure. Prentice-Hall. 1962. $4.50.
History of measuring devices from origin of ruler to instruments that can measure a speck of dust.

See listing in primary section.

Cooke, D. C. How money is made. Dodd. 1962. $3.95.

Uses mathematical concepts of measurement.

Gives a comprehensive, yet clear and simple description of the role of computers in our lives. Covers binary operations, flow-charts and occupational opportunities, methods of feeding information and programming.

Ellison, Elsie C. Fun with lines and curves. Lothrop. 1972. $4.25; PLB $3.94.
Activities using ruler, compass and protractor to create a range of designs from simple to intricate. Clear instructions for recreating them with colored thread.

Fletcher, Helen Jill. Puzzles and quizzes. Abelard-Schuman. 1971. $3.75; PLB $1.59. See listing in primary section.


Freeman, Mae. Finding out about shapes. McGraw. 1969. $3.95. See listing in primary section.

Friend, J. N. Numbers: fun and facts. Scribner. 1954. $5.95; pa. $2.25.

Froman, Robert. Rubber bands, baseballs and doughnuts: a book about topology. Crowell. 1972. $3.75. (A young math book) This is a sound summary with hilarious cartoon illustrations of some elementary principles of topology, an important topic that is touched on briefly in a few elementary school programs. Topology deals with properties of an object or form that survive distortion such as stretching.

Gallant, Roy A. Man the measurer: our units of measure and how they grew. Doubleday. $4.95; PLB $1.75 extra. Well-done historical account with plenty of facts, thought-provoking questions, and a strong argument for adoption of the metric system.

Gardner, Martin. Mathematical puzzles. Crowell. 1961. $4.50. How to solve arithmetic, money, plane and solid geometry puzzles provides challenging material for the budding mathematician.

__ Perplexing puzzles and tantalizing teasers. Simon and Schuster. 1969. $3.95; PLB $3.79; pa. $1.60. Puzzles for the confirmed addict, not all with obvious math concepts but challenging and fun.

Hine, Al. Money round the world. Harcourt. 1963. $3.75.

Hitte, Kathryn. Hurricanes, tornadoes and blizzards. Random House. 1960. PLB $1.47. Good charting of dimensional information makes this book about the mathematical problem of predicting the direction of major storms even more valuable.
Interesting presentation of "animal clocks" and "compasses" which tell them when to hibernate, migrate and travel.

Directions and diagrams for 70 games involving arithmetic.

Brief discussions of some abstract topics such as open equations, identity, laws of mathematics and number lines. Good for reference.

See listing in "more able" section.

Simple computing devices, including the slide rule, can be made from clearly stated instructions.

Examples of geometric puzzles, ciphers, jigsaws, and anagrams point out everyday uses of puzzle patterns in gears and locks.

Spirals. Hale. 1964. $2.67.
Concepts of spatial relationships are well illustrated and explained.

Klein, Lenore. What is an inch? Harvey. 1966. $3.95; PLB $3.79.
See listing in primary section.


Latham, J. L. Carry on Mr. Bowditch. Houghton. 1955. $4.25; pa. $3.95.
A biography of Nathaniel Bowditch who developed tables for navigators which are still used today.

Includes interesting chart showing the names for very large numbers.


Good book on graphs except for incorrect concepts pertaining to line graphs. Most are shown as continuous when they shouldn't be.

Maltz, M. S. Our largest animals. Albert Whitman. 1958. $2.75.
Many number names, relative size, weight, and time are the basis of this book.

An understanding of the terms of comparison and shape is needed to make objects without cutting or pasting.

A didactic, but quite extensive, discussion of what computers are and how they function in our society. Includes a fair amount of technical information.

Neal, H. E. The story of the kite. Vanguard. 1954. $3.95.
Construction of kites requires elementary concepts of measurement and geometry.


A part of this book illustrates the application of mathematics to music in the study of rhythm and the building of melodies.

Pictorial account of why the earth seems flat to us and how man learned its true shape.

(Exploring mathematics)
This gives a sound, pleasant discussion of some fundamentally important notions of probability without recourse to rules and formulas. Valuable for 5th and 6th graders.
Presents mathematics as the product of the mind of man.

Explanation of a variety of codes using letters, numbers, and especially shapes and color along with messages for practicing encoding and decoding.

Discussion of many interesting, beautiful and practical geometric topics, including directions for making many designs and shapes. "Some Geometric Puzzles" would be a more accurate title.

One, two, three and many: a first look at numbers. Walck. 1970. $4.25.
Readable account of the history of numeration.

Sharp, Elizabeth. Simple machines and how they work. Random House. 1959. $2.95; PLB $3.47.
This discussion of wheels, pulleys, levers, screws, wedges, and inclined planes makes wide use of the language of size, position, and comparison.

An amusing story of a class which became bored with numbers and tried to live without them.

Beginning with a clear, intuitive explanation of a circle, proceeds to explain the use of a compass, and shows how to make beautiful designs using circles.

See listing in primary section.

--- What is symmetry? Crowell. 1970. $3.75; pa. $.95.
(A young math book)
See listing in primary section.
A very simplified and popularized version of the internal construction and operation of a computer.

$3.75; pa. $.95. (A young math book)
See listing in primary section.

Very readable account of some of the great mathematicians from Euclid to Wiener. Useful for motivation and oral reports, math club projects, etc.

This popular game of fitting together a seven-piece puzzle to form illustrated silhouetted patterns can also help teach about shapes.


Zim, Herbert. The universe. Morrow. 1961. $3.56.
Combining ideas of measurement and geometry, the author shows the earth in relation to other planets.
For the more able learner

Adler, Irving. The magic house of numbers. Day. 1957. $3.96; Signet. pa. $.60.
Our number system made interesting via mathematical curiosities, riddles, tricks, and games.

Extremely brief treatment of sets, sub-sets, empty sets, truth sets, equations, intersection and union and least common multiples.

Informal explanation of numbers and numerals from simple finger counting to logarithms, imaginary numbers, and infinity.

Barr, Stephen. Experiments in topology. Crowell. 1964. $4.50; pa. $1.95.
A lively explanation of one of the dynamic branches of mathematics.

One of the very attractive Horizon titles.

A history of measurement including length, mass, time, temperature, sound, light, electricity, and radiation.

One of the very attractive Horizon titles.

Brandes, L. G. A collection of selected math posters. Welch. 1966. pa. $3.50.
Eighteen posters to assist in stimulating an interest in mathematics.

"A the math wizard. Welch. 1964. pa. $3.00.
This varied collection of puzzlers, number oddities, etc. contains a good annotated bibliography of available publications in the area of mathematical enrichment.
Yes, math can be fun. Walch. 1960. pa. $2.50.

Cordell, C. M. Dramatizing mathematics. Walch. 1963. pa. $4.00.
Seventeen vivid no-royalty skits and action projects requiring no special scenery or costumes.

Davis, Philip J. and Chinn, William G. 3.1416 and all that. Simon and Schuster. 1969. $5.95.
Collection of articles from Science World on topics of intellectual appeal that explore some interesting aspects of mathematics. Suitable for very bright sixth graders.

A number of simple experiments enhance this delightful explanation of the history and use of mathematics, with an emphasis on geometry.

Dilson, Jesse. The abacus: a pocket computer. St. Martin's. 1968. $4.50.
Gives a brief resume of the history of numeration, and a detailed description of abaci, including their operation. Good for the rare student who loves arithmetic calculations.

Dinesman, Howard P. Superior mathematical puzzles: with detailed solutions. Simon and Schuster. 1968. $3.95.

Feravolo, Rocco. Wonders of mathematics. Dodd. 1963. $3.95.
Simple activities and problems illustrate the development of number systems and mathematics.

Freeman, Mae and Freeman, Ira. Fun with figures. Random House. 1946. $2.50; PLB $3.39.
An introduction to simple principles of geometry.

Interesting biography of a man who spent much of his life trying to design and perfect a calculating machine and then a computer in the 1800's.


Hogben, Lancelot. The wonderful world of mathematics. Doubleday. 1955. $3.95; PLB $.75 extra.
A history of mathematics, showing how its development parallels the growth of civilization.
150 brainteasers with solutions suitable for the secondary level but with some problems that are fun for the fifth and sixth graders.

Fascinating topics, clearly presented, that reveal how mathematics works with fun activities such as building fluxagons, breaking codes, and blowing bubbles.

Kojima, Takashi. The Japanese abacus: its use and theory. Tuttle. 1954. pa. $1.95.

Levinger, E. E. Albert Einstein. Messner. 1949. $3.50; PLB $3.79.


See listing in intermediate section.

Describes a wide range of measurement ideas and devices with reference to several engineering and physical disciplines.


Especially good for understanding modern mathematics and its application to problems of logic and pure and applied mathematics.

See listing in intermediate section.
Thought provoking preview of how computers may be used by society in the near future in education, environmental control, law enforcement, medicine, etc. and some of the sociological and economic implications.

A well-written, brief study of the mathematical contributions of the early Greeks, which shows mathematics as a creative human endeavor.

A rather, full technical account of computers with instructions on how to make one.

Concepts of time and its measurement are carefully developed.
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