

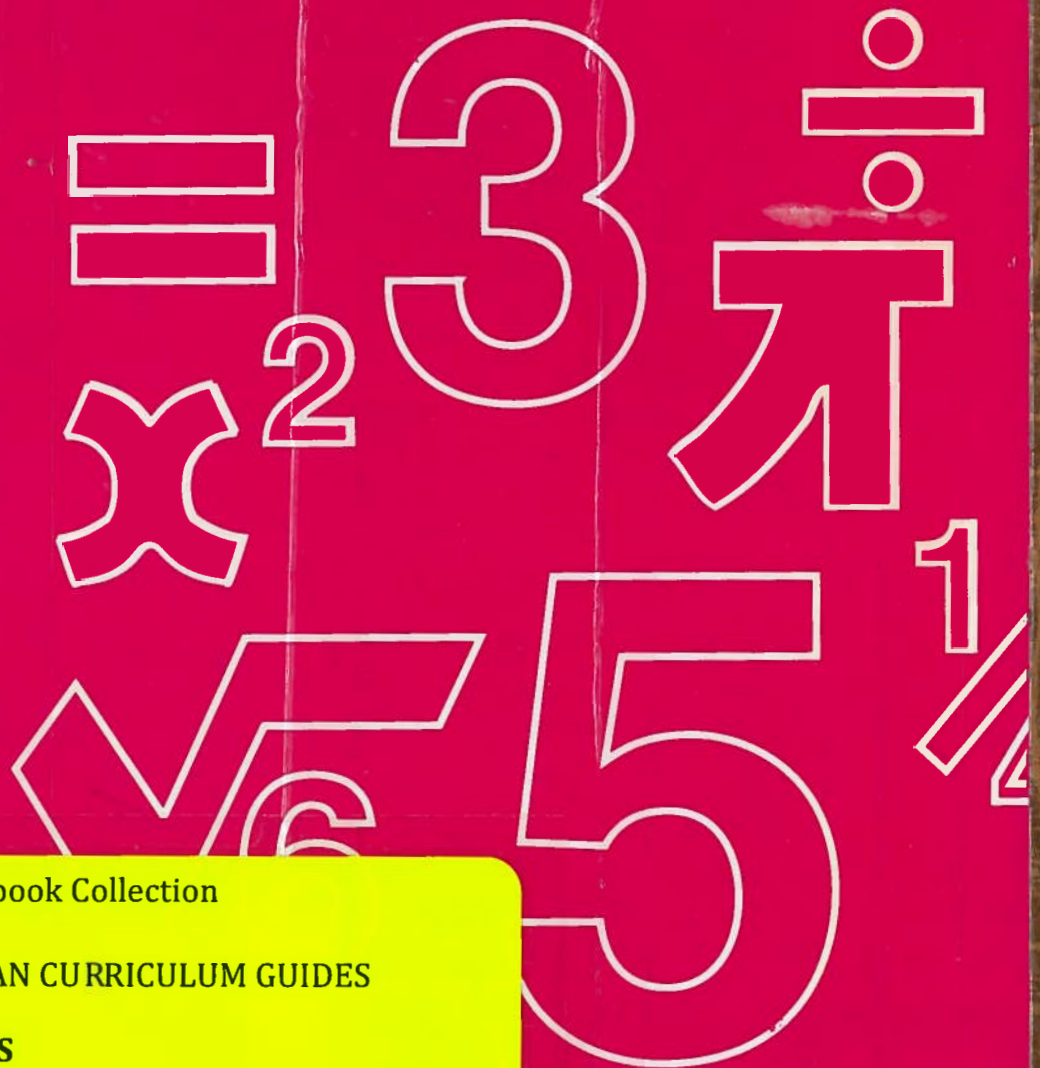


Saskatchewan
Education

Mathematics

A Bibliography for the Elementary Level

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SASKATCHEWAN CURRICULUM GUIDES

MATHEMATICS

Mathematics : a bibliography for the elementary
level
(1992)

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March 1992

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Mathematics
A Bibliography for
the Elementary Level

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Foreword

Steps to a Multi-Resource Approach to Teaching Elementary Mathematics

The intention of this bibliography is to assist educators in choosing a variety of appropriate resources to meet the needs of the new Elementary Mathematics Curriculum.

The items listed in this bibliography are centred around the philosophy of resource-based learning in which the curriculum is supported by a variety of resources rather than a single textbook. This approach provides students with opportunities to interact with a wide range of current media in a variety of learning situations. It is important that human resources be accessed as well since, in every community, there are capable people who can enrich the learning experience.

For Elementary Mathematics the purchase of a class set of textbooks is not recommended.

The resources recommended in this bibliography include manipulatives, films and filmstrips, activity cards and kits, journals, study prints, computer software, videotapes and various print resources. To assist educators in implementing resource-based programs, numerous resources have been listed in the bibliography. As a further aid, key resources which are considered to be particularly useful or which support the objectives of a substantial part of the course have been identified. When using this bibliography as a selection aid, the following suggestions may be helpful.

Background Review

The resources in this bibliography are recommended for the Kindergarten to Grade 5 courses. However, it remains the responsibility of individual schools to preview and select materials that best meet the needs of that particular school and the community. It is suggested that:

- the school board's selection policy be reviewed.
- resources on evaluating materials for bias and those on resource-based learning be consulted. For example, the Saskatchewan Education publications *Diverse Voices: Selecting Equitable Resources for Indian and Métis Education* (April 1992), and *Selecting Fair and Equitable Learning Materials* (March 1991), should be reviewed. Additional copies of these can be obtained from the Book Bureau.
- the section of the Elementary Mathematics Curriculum Guide, "Approaches to the Teaching and Learning of Elementary Mathematics," be reviewed.

Analyzing Present Resources

- The bibliography should be cross-referenced with the school resource centre catalogue in order to identify and take note of suitable resources already present in the school library collection.
- Materials in the present collection should be assessed based on the needs of the curriculum, the community, the students and the teachers. Considerations of needs include:
 - (i) reflection of curriculum philosophy
 - (ii) accuracy, currency, readability
 - (iii) relevance, adaptability and versatility of resources

Points for Consideration in Acquiring New Resources

- Ideally, each classroom would have a collection of basic, frequently-used manipulatives.
- The key resources identified should be examined before final ordering decisions are made. One or two copies of some of these resources could be shared among elementary classrooms.
- Library wholesalers and publishers are sometimes willing to provide a display of recommended materials at the school division level so that educators can have the opportunity to preview materials before purchasing.
- Resource needs not met by the present collection could be identified by teachers and teacher-librarian working together. Some materials could possibly be used for several grade levels and subject areas.
- The videotape programs available for duplication from Media House Productions could be ordered. These are high quality programs that can be acquired at a nominal cost. Please consult the current Media House Productions catalogue of resources that was sent to every school. Schools are responsible for costs of postage, a duplication charge of \$1.00 per title, blank tape and applicable taxes. Videotape copies can be made on: 3/4" videocassette, 1/2" Betamax videocassette, or 1/2" VHS videocassette which may be supplied by the school or purchased from Media House Productions. Duplication order forms are available from Media House Productions. Please refer to the Publisher/Producer/Distributor Directory for address and telephone numbers.

Schools interested in purchasing materials should contact the distributor listed in the Publisher/Producer/Distributor Directory at the end of this document. Please refer to the section "How to Use the Bibliography" for information on the efficient use of this document.

Saskatchewan Education has provided free of charge one copy of this bibliography to each elementary school. Additional copies are available from the Book Bureau, or schools may photocopy this publication.

It is hoped that these practical guidelines will assist educators in developing a highly useful, suitable collection of resources which meets the needs of both students and teachers.

Acknowledgements

Saskatchewan Education expresses its appreciation to the publishers and producers who provided material for examination and gratefully acknowledges the contribution made by the following educators who served as materials evaluators in the evaluation program. While we have attempted to list everyone who was involved in evaluating materials, we may have missed someone. Please accept our apologies if your name has been omitted.

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Rachel Putman
Mary Reeves
Terry Robinson
Sandra Rowden
Gordon Rutten
Kathi Sandbeck
Joan Sandomirsky
Richard Smith
Pam Sokalski
Ramona Stillar
Debbie Van Seters
Judy Wall
Jean Wilke
Joylene Wolitski
Willie Yakishyn
Judy Young

How to Use the Bibliography

The bibliography is organized into the following sections:

Titles and Descriptions: Titles are listed alphabetically. The citations provide bibliographic information, sources, annotations, and suggested use and other uses if applicable. The abbreviation hdc. denotes hardcover edition, while pbk. denotes paperback edition. Dup. means available for duplication. The abbreviations enclosed in parentheses following the publisher or producer denote the distributor. The full name and address of each company is listed at the end of this document. An example of a citation for a videotape is:

Title **Media Designation** **Series** **Producer**

Precision and Estimation (Videotape). (Solve It). Agency for Instructional Technology

(MHP), 1987. 15 min. Dup. Order No. V02576

Distributor **Date** **Length** **Order Number**

Annotation:

Chip and Duane turn the task of making peanut brittle into a risky business when they proceed without a candy thermometer. They discover the importance of choosing a measuring instrument appropriate to the task at hand. The hosts emphasize that appropriate instruments can measure precisely.

Suggested Use: Grades 1 to 9

Other Uses: Middle Years Math

An example of a print citation:

Title **Media Designation** **Author** **Publisher**

Farm Counting Book (Print-Non-Fiction). Jane Miller. Simon & Schuster

(MUS). 1983. 24 p. ISBN 1-330-4809-8 (\$6.95 pbk.)

Distributor **Date** **Collation** **Order Number** **Price**

Annotation:

Full colour photographs of a wide variety of farm animals are featured in this counting book with numerals from one to ten. Each photo is framed in black and surrounded by a bright yellow border with a large red numeral and numbers written in words - "five cows." Also listed in the Elementary Science bibliography.

Suggested Use: Grades Kindergarten to 1

Other Uses: Elementary Science

Key Resources for Elementary Mathematics

Manipulatives

The philosophy of the Elementary Mathematics Curriculum promotes the active participation of all students. Students learn best by forming mental pictures of numbers, number relations, and mathematical concepts through manipulation of concrete material. Therefore, every elementary mathematics teacher should have basic manipulative materials as part of the classroom resources. Some manipulatives may be purchased; others can be constructed; many collected; and still other acquired through a combination of all three methods. Most concrete materials can be used in a wide variety of ways in the classroom.

When obtaining manipulatives it is advisable to purchase sufficient quantities of key manipulatives rather than a commercially prepared kit which may contain items that are less frequently used. Print material to support various manipulatives is available and recommended.

Item	Order No.	Suggested Quantity			Price (Approx.)
Base Ten Material		Gr. 1	Gr. 2	Gr. 3-5	
unit cubes (pkg. of 100)	BB 1671	10	5	5	\$3.50/pkg.
rods (pkg. of 10)	BB 1672	20	10	10	\$3.00/pkg.
flats (pkg. of 10)	BB 1673		8	8	\$10.00/pkg.
decimetre cubes	BB 1674			2	\$7.00 ea.
stamps (set of 4)	BB 1675	1	1	1	\$10.00/pkg.
Linking Cubes	BB 1676	1000			\$8.00 per 100
Pattern Blocks (pkg. of 250)	BB 1680	5			\$25.00/pkg
Overhead Blocks (set)	BB 1681	1			\$10.00
Attribute/Logic Blocks (pkg. of 60)	BB 1682	Gr. 1 (large) - 1			\$50.00/pkg.
	BB 1683	Gr. 2-5 (small) - 2			\$20.00/pkg.
Geoboards					
5 x 5 (Gr. 1-2)	BB 1677	15			\$5.00 ea.
11 x 11 (Gr. 3-5)	BB 1678	15			\$7.00 ea.
Geo-bands (set)	BB 1679	1			\$3.00/set
Money coins and bills (set)	BB 6390	2			\$12.00/set
Calculators	1 class set per school, plus individually owned student calculators				

It is recommended that each classroom's inventory of concrete material be cross-referenced with items listed in the bibliography and that manipulatives be obtained based on the needs of the students, the teacher, and the curriculum. It is recommended that initially teachers focus on the multiple applications of a few major manipulatives and gradually expand the scope of manipulatives used. It is also recommended that less frequently used items be shared among teachers in the school.

The Book Bureau (BB) stocks most of the key resources for elementary mathematics. Please note that prices quoted are approximate only. Wherever possible, the key resources identified should be examined before final ordering decisions are made. The Book Bureau may be able to arrange previewing privileges if materials are returned in saleable condition and a restocking fee is paid. Please contact the Book Bureau for details. A full description of the various manipulatives is provided later in the bibliography with approximate prices. Print material to support various manipulatives is available and recommended.

Videotapes

Many excellent student and teacher videotapes are available to support student learning of mathematics. Several titles can be obtained from Media House Productions for a duplication charge of \$1.00 per title, plus postage and a blank videotape; other titles can be purchased at varying costs through suppliers. If the more costly videotapes are purchased, a school division may wish to house them in a division collection and loan them to schools.

Titles recommended include:

- Mathematics: With Manipulatives (6 titles) (Spectrum) \$129.00/each \$695.00/set.
- Beginning Mathematics (7 titles) (MHP) \$1.00 per title plus blank tape.
- Mathematics: Making the Connection (1 title) (MHP) \$1.00 plus blank tape.
- Math Works (28 titles) (MHP) \$1.00 per title plus blank tape.
- It Figures (28 titles) (MHP) \$1.00 per title plus blank tape.
- Solve It (18 titles) (MHP) \$1.00 per title plus blank tape.

A full description of each of these titles appears in the bibliography.

Student Textbooks and Teacher Resources

If teachers are to instruct students using methods which support optimal student learning, they must have available a wide range of various kinds of materials. In the case of elementary mathematics, it is recommended initially that allocated funds would be most effectively used for the purchase of manipulatives and key teacher references.

New print resources which more fully support the curriculum may be available from publishers in the future. If class sets of textbooks have been purchased recently, they may certainly be used as one of many resources, but should be used with discretion. Textbook materials considered suitable are listed in the bibliography and in the *Textbooks Circular*. However, all textbooks must be examined carefully. Only those parts that support the objectives of the curriculum and the recommended instruction and evaluation practices should be used. The purchase of a class set of textbooks is expensive. They can become quickly outdated. No one textbook meets all the requirements of the new curriculum.

The purchase of a class set of textbooks is not recommended.

The following Print-Teacher-References reflect the philosophy of the Elementary Mathematics Curriculum and provide appropriate resources for the elementary classroom. A complete description of each item appears in the bibliography.

Print-Teacher-References recommended are:

Active Learning Series (Print-Teacher-Reference) Exclusive Educational Products (BB), 1989. 80 p. each (approx.) \$30.00 each (approx.).

Titles in the series:

Complete Book of Cube-A-Link (K-Grade 4)	BB 1665
Complete Book of Cube-A-Link (Grade 5-8)	BB 1667
101 Winning Ways With Base Ten (Grade 1-3)	BB 814
101 Winning Ways With Base Ten (Grade 4-6)	BB 6024
Pattern Blocks (Grade 4-6)	BB 1668
What Do You Do With Attribute Blocks? (Grade K-8)	BB 829
The Geoboard Collection (Grade 4-6)	BB 826

Cooperative Learning in Mathematics: A Handbook for Teachers (Print-Teacher-Reference) Neil Davidson (Editor). Addison-Wesley (BB), 1990. 409 p. BB 825. \$44.88.

Explorations (Print-Non-Fiction) Betty Coombs, et al. Addison-Wesley (BB), 1985.

Explorations for Early Childhood	BB 824	\$ 89.70
Explorations 1	BB 5472	\$106.95
Explorations 2	BB 5473	\$106.95

Hands On Manipulative Activities for Primary Children (Print-Teacher-Reference) Creative Publications (BB), 1986. 120 p. each (\$28.40 each).

Hands On Attribute Blocks (K-Grade 3)	BB 6363
Hands On Base Ten Blocks (K-Grade 3)	BB 6364
Hands On Pattern Blocks (K-Grade 3)	BB 6365
Hands On Geoboards (K-Grade 3)	BB 6366

MathWorks (Print-Non-Fiction). Heather J. Kelleher. Houghton Mifflin (BB), 1992. \$96.00 each.

MathWorks A
MathWorks B

BB 6065
BB 6066

Mental Math in the Middle Grades: Blackline Masters (Grade 4-6) (Print-Teacher-Reference). Jack A. Hope, et al. (Mental Math). Dale Seymour Publications (BB), 1987. 121 p. BB 6023 (\$12.75).

Mental Math in the Primary Grades: Blackline Masters (Grade 1-3) (Print-Teacher-Reference). Jack A. Hope, et al. (Mental Math). Dale Seymour Publications (BB), 1988. 117 p. BB 6022 (\$12.75).

Pattern Blocks Activities K-6 (Print-Teacher-Reference). Barbara Bayha and Katherine Burt. Dale Seymour Publications (BB), 1985. 82 p. BB 6021 (\$13.35).

The Problem Solver: Activities for Learning (Print-Teacher-Reference). Judy Goodnow, et al. Creative Publications (BB), 1987. 142 p. each (\$32.90 each).

The Problem Solver 1	BB 6016
The Problem Solver 2	BB 6017
The Problem Solver 3	BB 6018
The Problem Solver 4	BB 6019
The Problem Solver 5	BB 6020

Windows on Mathematics: Worktime Activities for Young Children (Print-Teacher-Reference). Joan Westley, et al. Creative Publications (BB), 1987. 64 p. each BB 6369 (\$125.00 complete set or individually as listed in the bibliography).

All of these items are annotated separately in the bibliography.

Manipulatives

As previously discussed in the Key Resources section, the intensive use of manipulative materials is considered imperative to the success of the new mathematics curriculum. **Every mathematics teacher should have basic manipulative materials as part of the classroom resources.** The Book Bureau (BB) has agreed to stock basic manipulative material. A brief description of several manipulatives follows with Book Bureau references (order numbers and prices) where applicable. Where no order number appears, teachers are advised to consult the various companies listed in this section and make choices after comparing prices and quality. Wherever possible, small quantities of manipulatives could be ordered as preview materials before final ordering decisions are made. The Book Bureau may be able to arrange previewing privileges if materials are returned in saleable condition and a restocking fee is paid. Please contact the Book Bureau for details.

Linking cubes are colourful 1 or 2 cm cubes that "link" or "interlock" by snapping together on each of 6 faces. The cubes can be used for many activities: patterns, counting, sorting, ordering, matching, adding, subtracting, multiplying, dividing, fractions, decimals, place value, estimation, combinations, graphing, 3-D figures, congruency, symmetry, rotation, spatial visualization and measuring - length, area, volume, mass. Order No. BB 1676, 1000 cubes recommended at \$8.00 per 100.

Base Ten materials may be purchased in many formats or may be constructed as simply as gluing 10 bean seeds on a popsicle stick. Purchased items may include decimetre cubes, flats, rods and unit cubes. The materials are available widely, and are made of plastic, wood or paper. Overhead pieces are also available. Base Ten stamps are available - they help make the transition from concrete to abstract. Base Ten materials help to clarify number and numeration concepts, and demonstrate linear area and volume measurements in the metric system. Their applications include: counting, estimating, regrouping, place value, adding, subtracting, multiplying, dividing, decimals, length, area, volume and mass.

100 Unit Cubes	BB 1671
10 Rods	BB 1672
10 Flats	BB 1673
1 Decimeter Cube	BB 1674
4 stamps	BB 1675

See Key Resources section for suggested quantities and prices.

Abacus, or counting frames, are apparatus made of beads sliding on wires to facilitate arithmetical calculations. They vary from very basic to sophisticated instruments. Their uses include: counting, place value, adding, subtracting, multiplying, dividing, decimals. A very basic abacus may be constructed, but more complicated items would be purchased. Prices vary from \$10.00 up. Order No. BB 1670 for a 4-place, vertical column model.

Pattern Blocks are useful for counting, patterns, tessellations, fractions, 2-D and 3-D shapes and figures, perimeter, area, symmetry and problem solving. They are versatile manipulatives usually made of wood or plastic and consisting of several precision - cut designs of triangles, rhombuses, hexagons, trapezoids and squares. Also available are plastic templates, rubber stamps and stickers. The Book Bureau stocks packages of 250 blocks for \$25.00 per package, Order No. BB 1680. A set of transparent Overhead Pattern Blocks is also available, Order No. BB 1681 for \$10.00.

Attribute Blocks, also called "logic blocks", are plastic or wooden blocks available in various colours. These versatile blocks allow students to carry out logical operations and to develop the ability to recognize attributes such as colour, thickness, shape, and size. Applications include: shapes, colours, patterns, sorting, ordering, matching, identifying characteristics, tracing and problem solving. Sets usually contain five shapes: squares, rectangles, triangles, circles and hexagons. The Book Bureau stocks packages of 60 Attribute/Logic Blocks in two sizes. Order No. BB 1682 for large blocks and BB 1683 for smaller blocks. See Key Resources for prices and suggested quantities.

Geoboards help teach counting, numerals, geometric shapes, fractions, decimals, perimeter, area, graphing, symmetry, and angles. They may be purchased or constructed of boards and small nails. Arrays of 5 x 5 are common, as are 9 x 9, 10 x 10, 11 x 11. Geoboards allow graphic production of shapes, angles, sets and patterns by stretching elastics over pins on a board. Transparent overhead geoboards are also available for purchase, as are coloured elastic bands. The Book Bureau carries 5 x 5 geoboards, Order No. BB 1677 at \$5.00 each; 11 x 11 geoboards, Order No. BB 1678 at \$7.00 each; and sets of 400 Geo-bands, Order No. BB 1679 at \$3.00 each.

Tangrams are Chinese puzzles consisting of squares cut into several differently shaped pieces which fit together to re-form the square. They have applications for making geometric shapes and figures, matching, counting, spatial awareness, tracing and dimensions. They are similar to pattern blocks but come in more shapes and are thinner. Tangrams may be purchased for \$25.00 or constructed out of paper or tiles. Also available are transparent pieces for the overhead, stickers and templates for tracing.

Geometric Solids, or geoblocks, are 3-dimensional models which may be purchased, or constructed or collected. Purchased sets may be plastic or wooden. An array of sizes and configurations are available but most sets include a sphere, cube, cone, cylinder, pyramid, and varying prisms. Prices range from \$25.00 a set and up. These models help to establish spatial awareness, shape recognition and construction qualities. Rubber stamps of geometric shapes are also available.

Money sets or packages may be collected, constructed or purchased. The sets may contain very realistic representations or very symbolic items. Newest sets available now contain the Canadian loon dollar coin. A number of supplementary materials such as cash drawers, wallets and rubber stamps are available as are overhead money pieces. Money is useful for teaching basic life skills and place value, counting decimals, adding, subtracting, multiplying, dividing, fractions. The Book Bureau stocks money sets for approximately \$12.00 each, Order No. BB 6390.

Mira is a precision, clear acrylic instrument used to discover and understand geometric properties. At the elementary level, flips, turns, slides, and symmetry can be examined and studied. Spatial awareness, parallel lines and perpendicular lines are all examined using Mira which sells for approximately \$6.00 per unit.

Dice may be purchased in a wide variety of formats. Common six-sided dice are readily available or easily constructed but specialty dice with more than the standard number of faces would need to be purchased. Dice are useful for probability, games, counting, various operations and place value. The prices of dice vary considerably depending upon type.

Counters are used for counting, patterns, adding, subtracting, multiplying, dividing, fractions, decimals, and data management games. Counters may be purchased in limitless variations, at varying prices. Some counters are transparent for overhead use. Constructed or collected counters provide economical alternatives to purchased products.

Hundred Boards are used for counting, place value, patterns, and operations. Hundred boards have all of the numbers from one to 100. They may be very small or large enough to walk upon. This very versatile manipulative device may be constructed in a variety of sizes and with a variety of materials, or they may be purchased for \$10.00 and up.

Number Lines are useful visual aids for students. This type of manipulative may be permanently mounted on classroom walls or can be as simple and as portable as a tape measure. Number lines aid in counting, patterns, operations and visualizing negative numbers. Number lines may be purchased or constructed in assorted sizes and colours.

Balances come in a variety of sizes and shapes with varying degrees of quality. While it is possible to construct very basic balances, for precise accuracy better quality instruments may be purchased. Various balances have different capabilities, such as removable buckets, clear buckets, and so on. Balances can compare masses, confirm simple addition, subtraction, and multiplication facts. A variety of weights and masses are available for purchase, although collected items would work well for this.

Digit and Symbol Cards may be constructed and provide applications in the areas of foundations, counting, place value, operations, fractions and decimals.

Blank Cards are useful for games of all descriptions or for constructing flash cards, number cards and so on. They may be purchased or constructed.

Clocks are an essential manipulative for teaching time. Both analog and digital clocks are necessary today. Available are 24 hour clocks with moveable hands and digital demonstration models. Overhead clock faces may be constructed or purchased. As well, clock faces for the entire class may be constructed easily.

Lake and Island Boards are easily constructed and may be laminated for durability. They are very useful for teaching area, perimeter, length, adding and subtracting.

Metre Sticks, Rulers and Tapes are essential purchasable items needed for measuring, estimating, number line operations, fractions, decimals and graphing. Four-sided metre sticks show the relationship between the metre, decimetre, centimetre and millimetre.

Containers of all shapes and sizes may be collected or purchased. They are useful for measuring length, area, capacity, volume, mass, angles and for studying geometric shapes.

Calculators may either be accumulated by individual students or a class set of identical calculators may be purchased. Calculators are a vital part of our world today, and students need to learn when, how and why to use them. Very simple instruments with oversize readouts in sturdy boxes or cases may be purchased; more sophisticated instruments are also available. One class set per school is usually sufficient. Often an overhead calculator is part of a complete package, or it may be purchased separately.

D-Stix are hollow plastic sticks with joiners that allow construction of simple and complex geometric structures. The rods are colour-coded and the joiners, or multi-pronged vinyl connectors, connect to form 2-dimensional and 3-dimensional shapes. Purchased sets sell for approximately \$20.00; however, they may be made out of any number of easily collected items such as pick-up sticks and play dough.

Fraction strips may be purchased or easily constructed. They allow a visual representation of fractional relationships among halves, thirds, fourths, sixths, eighths, and twelfths. These models aid in teaching fractional concepts such as equivalent fractions. Overhead fraction strips are also available for approximately \$10.00.

Fraction Circles can be easily made out of paper or plastic sets may be purchased. The models allow visual identification of halves, thirds, quarters, sixths and eighths. They are useful when studying fraction concepts.

Sources of manipulative materials:

The list of manipulative materials useful for an elementary classroom is limited only by one's imagination. Some other suggestions might include floor graphs, walking number lines, prisms, trundle wheels, dominoes, jigsaw puzzles, puzzles, games, place value maps, various thermometers, cuisenaire rods, and measuring devices of all kinds.

During the evaluation process, products from several companies were examined. As no one company is a sole distributor of all of the recommended manipulative materials, the Book Bureau (BB) has agreed to stock many of the recommended manipulatives. Products not carried by the Book Bureau may be handled by various companies. Educators should obtain catalogues from the companies listed in this section and make selections based on quality and current prices. Local educational retail stores may also carry a selection of manipulative materials.

Exclusive Educational Products
243 Saunders Road
Barrie, ON
L4M 6E7
(705) 739-5900
Fax: (705) 739-5901

Spectrum Educational Supplies Limited
125 Mary Street
Aurora, ON
L4G 1G3
(416) 841-0600
Fax: (416) 727-6265

Developmental Learning Material
81 Mack Avenue
Scarborough, ON
M1L 1M5
(800) 268-4141

Addison-Wesley Publishers
26 Prince Andrew Pl.
P.O. Box 580
Don Mills, ON
M3C 2T8
(416) 447-5101
Fax: (416) 443-0948

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Titles and Descriptions

Activity Based Mathematics (Videotape Series). Magic Lantern (MAG), 28 min. each (\$99.00 each or \$449.00 set)

Activity Based Mathematics is a five-part series of video programs designed to be used by elementary mathematics teachers. The emphasis of the programs is to introduce teachers to the use of concrete materials in their classrooms. The five topics covered are: Measurement; Numbers and Operations; Data Analysis; Algebra; and Geometry. In Measurement students use standard measurement units and begin to develop the idea of area and perimeter. The abacus is used to demonstrate place value and cuisenaire rods help to introduce algebraic equations in Numbers and Number Operations. Graphs are shown as one way to present and interpret statistics meaningfully in Data Analysis. Coloured blocks are used to introduce algebraic patterns in Algebra and the subject is introduced as a language with interesting aspects and practical uses. In Geometry students classify shapes and explore properties of three-dimensional figures using concrete objects and geoboards.

Suggested Use: Grades 1 to 7

Other Uses: Middle Years Math

Adding and Subtracting Fractions and Mixed Numbers With Like Denominators (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02480

The concept behind fractions precedes illustrations of adding and subtracting two fractions and two mixed numbers.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Adding and Subtracting Fractions and Mixed Numbers With Unlike Denominators (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02489

This program emphasizes the ideas of equivalent fractions in showing how to change unlike fractions and mixed numbers to fractions that can be added or subtracted.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Addition - Revised (Videotape). (Beginning Mathematics). Magic Lantern Films (MHP), 1987. 13 min. Dup. Order No. V03005

Graphics, animation and live-action segments communicate ideas related to addition: the commutative property, the addition table, the role of zero in addition, the associative property, place value and expanded numbers and regrouping. By purchasing a pencil and eraser in a

store, students see how the addition algorithm helps us find the sum of a pair of two-digit numbers.

Suggested Use: Grades 1 to 5

The Alaska Mother Goose and Other North Country Nursery Rhymes (Print-Fiction). Shelley Gill. Paws IV Publishing Company (MARS), 1987. unp. ISBN 0-934007-02-0 (\$7.95 pbk.)

This collection of nursery rhymes features northern animals such as musk oxen, lemmings, snow geese and marmots. Beautiful illustrations correspond with the text and offer numerous opportunities for estimation. A glossary completes the text.

Suggested Use: Grades 2 to 4

Other Uses: English Language Arts

Alien Addition (Software). (Arcademic Skill Builders in Math). DLM Teaching Resources (DLM), 1982. ISBN 1-55924-006-7 (\$49.95)

One of six in the series of Arcademic Skill Builders, this Apple program consists of one 5 1/4" disk, 12 help sheets, 52 flashcards and teacher's manual. The compelling arcade game format provides practice in addition of numbers from 0 to 9 in an alien invasion theme. The practice is timed and provides immediate feedback. Progress and analysis of performance is provided. The objectives of this program are simple and straightforward.

Suggested Use: Grades 1 to 3

Alligator Mix (Software). (Arcademic Skill Builders in Math). DLM Teaching Resources (DLM), 1982. ISBN 1-55924-010-5 (\$49.95)

Alligator Mix is one of six Apple computer programs in the Arcademic Skills Builders series. This fast-paced game combines a mix of addition and subtraction facts from 0 through 9 in a "feed the alligator" format. Like the other sets of materials in this series, a number of components are included: one 5 1/4" disk, 52 flashcards, teacher's manual, blackline masters, and work sheets. The teacher may change the parameters of the game by setting the speed, adjusting the skill level and controlling the length of the game. Keyboard or paddles may be used.

Suggested Use: Grades 2 to 4

Alphonse Knows.... (Print-Fiction). W. Werner Zimmermann. Oxford University Press (OUP), 1990. unp. (\$9.95 each hdc.)

The *Alphonse Knows....* series is attractive for several reasons: the resources are bright, colourful and holiday-theme related, the resources present mathematical concepts and skills

in a humorous manner, and the resources can be correlated with Language Arts themes. The books are bright with comic-like characters, including a wizard and a mouse. Three or four lines of print per page move the plot by means of mathematical reasoning to an amusing conclusion.

Titles available in this series include:

Zero is Not Enough (ISBN 0-19-540797-0) with a counting, Halloween theme.

A Circle is Not a Valentine (ISBN 0-19-540744-X) in which Alphonse paints circles, squares and triangles until his mouse friend shows him how to paint a heart.

Twelve Months Make A Year (ISBN 0-19-540798-9) in which readers are taken through a full year with descriptions of seasons and special days ending on New Year's Eve.

Suggested Use: Grades Kindergarten to 2

The Amazing Arithmos (Activity Kit). Arithmos Industries Ltd. (STEP), 1990. (\$44.00)

The Amazing Arithmos is a Canadian-made, hands-on learning aid that helps students visualize numbers and number patterns. The 8 1/2 x 11 inch heavy plastic unit consists of two distinctive number patterns: the front face is a standard hundred board with moveable black numerals and the reverse face is a multiplication matrix with moveable red numerals. Applications include counting, addition, subtraction, place value, percentage, multiplication, division, fractions, equivalent fractions and square roots.

Suggested Use: Grades Kindergarten to 5

Animal Hours (Print-Fiction). Linda Manning. Oxford University Press (OUP), 1990. unp. ISBN 0-19-540771-7 (\$7.95 pbk.)

This is a "what if" story in which a young child is visited each hour of the day by one outrageous animal after another. The illustrations are wonderfully comical and incorporate traditional clock faces into the least expected places. Each previously mentioned animal finds his way onto the next page until the conclusion when all of the animals are crowded into the boy's bedroom. The text is descriptive and filled with rhetorical questions and told in rhyme. The possibilities for correlation with Language Arts are endless.

Suggested Use: Grades Kindergarten to 3

Animal Sleepyheads 1 to 10 (Print-Fiction). Joanna Cole. Scholastic Inc. (SCH), 1988. unp. ISBN 0-590-40920-4 (\$3.95 pbk.)

Just the right size to be held in small hands, this book is a bedtime rhyme with

anthropomorphic animals. Numbers 1 to 10 are illustrated with the number and verse enclosed in a quilted border that matches some part of the facing page.

Suggested Use: Grades Kindergarten to 1

Animals! A Big Information Book (Big Book). Carolyn Jackson. (Waves: language across the curriculum). Houghton Mifflin (HMF), 1992. ISBN 0-395-55982-0 (\$39.95)

This exceptionally sturdy big book details animal behaviors in simple text and large illustrations. Topics covered include animal groupings, animal homes, safety and other adaptations, and means of travel. The book presents opportunities for counting, patterning, graphing, and for integrating with science and language arts. Metric. Contents. More Books to Read. Index.

Suggested Use: Grades Kindergarten to 5

Other Uses: English Language Arts

Anno's Counting Book (Print-Non-Fiction). Mitsumasa Anno. Harper & Row (HCP), 1975. unp. ISBN 0-06-443123-1 (\$7.95 pbk.)

This wordless picture book illustrates the concept of counting from 1 to 12 and shows the development of a village over several months and years. Included in the margin are graphs and the numeral to be counted on that particular double spread page. This is a challenging counting book as the objects are not always grouped together.

Suggested Use: Grades Kindergarten to 1

Other Uses: English Language Arts

Anno's Math Games (Print-Non-Fiction). Mitsumasa Anno. Philomel Books (BEJ), 1982. ISBN 0-399-21151-9 (\$25.95 hdc.)

Award winning author Mitsumasa Anno has written this book which he says is about mathematics, not merely arithmetic. The mathematical learning experiences he offers young people are in the form of puzzles or games. He has included four types of problems. Section one deals with the meaning of "one" using sets of objects that share a particular characteristic. Section two features combinations, mixtures, adding, subtracting and classification. The third section examines sequence, position and ordinal, cardinal and set numbers. The last section presents puzzles and activities on measurement, graphs, comparison, ratio, proportion and perspective. Overall, it is a treasury of mathematical games and puzzles which lead children toward a fundamental understanding of mathematical principles.

Suggested Use: Grades 2 to 5

Anno's Mysterious Multiplying Jar (Print-Non-Fiction). Masaichiro and Mitsumasa Anno. Philomel Books (BEJ), 1983. unpag. ISBN 0-399-20951-4 (\$22.50 hdb.)

Amazing numerical happenings help to introduce factorials to elementary students. First pictorially, then with the actual numbers and symbols, students are shown the amazing power of expanding numbers. Beautifully illustrated, this is a collaborative effort of well-known Mitsumasa Anno and his son.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

Arithmetic Teacher: Mathematics Education Through the Middle Years (Journal). National Council of Teachers of Mathematics (NCTM), ISSN 0004-136X

The Arithmetic Teacher is a professional journal published monthly except June, July, and August. It is a forum for the exchange of ideas and a source of techniques for mathematics education through the middle grades. It presents new developments in curriculum, instruction, learning and teacher education. It interprets the results of research, and in general provides information on any aspect of the broad spectrum of mathematics education appropriate for preservice and inservice of teachers. Teachers are invited to become members of NCTM by paying individual memberships of \$40.00 U.S., or institutional memberships of \$45.00, either of which includes the journal subscription. Please add \$5.00 for Canadian subscription mailing fees. The address is The Arithmetic Teacher, National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 22091.

Suggested Use: Grades Kindergarten to 8

Other Uses: Middle Years Math

Artimus and Old Lace: Long Multiplication (16 mm). (Math That Counts). Encyclopaedia Britannica Education (MHP), 1975. 13 min. Order No. MP 7110

The distributive principle is illustrated in this fanciful tale about the multiplication problems of tax collector Cyrus Squeeze. His niece helps him out by picturing each problem as areas of rectangular arrays which she then adds up for the final product. The film may even help to explain G.S.T. and P.S.T.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Baseball Activity Book (Print-Non-Fiction). Americas Publishing Company (GIN), 1991. 47 p. Order No. C98300 (\$7.95 pbk.) Order No. C98301 (\$34.95 pkg. of five) Order No. C98302 (\$6.95 Activity book)

Aimed at a specific group - baseball lovers - this resource is an intimate look at baseball in general and the Toronto Blue Jays in particular. Presented in workbook format, but filled with colour, photos, sketches and charts, this student activity book contains highly interesting real life problems involving computation, estimation, operations, averages and so on. Many activities require high level thinking skills including evaluation, application, analysis and

synthesis. This annual is a potpourri of Blue Jay baseball trivia between two covers of a book.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Beginning Mathematics (Videotape Series). Magic Lantern Films (MHP), 1987. 14 min. each.

Titles in this series include: Addition - Revised; Counting, Base And Place Values - Revised; Division - Revised; Multiplication - Revised; Numbers All Around Us - Revised; Subtraction - Revised; What Are Fractions And How Are They Used? - Revised.

Each title is annotated separately in the bibliography.

Suggested Uses: Grades 1 to 5

Beginning to Learn About Measuring (Print-Non-Fiction). Richard L. Allington and Kathleen Krull. (Beginning to Learn About Series). Raintree Childrens Books (NEL), 1983. 32 p. ISBN 0-8172-1389-9

Using both metric and imperial measures, this primary resource introduces the functions of measuring emphasizing linear measurement, numbers, concepts of long/short, big/bigger/biggest, equal to, greater than and less than. Through activities and craft projects, it actively involves students in the learning process. Highly motivational.

Suggested Use: Grades Kindergarten to 3

Beginning Try-A-Tile (Activity Cards). Marcy Cook. Creative Publications (ADD), 1988. Order No. 53678 (\$28.50)

Beginning Try-A-Tile is a set of approximately 80 reversible 8 1/2 x 11" heavy tag board cards in a clear plastic bag. The cards are designed to be used at learning centers. Colour coded into four groups of activities, each provides simple counting and addition problems. Ten tiles (either purchased or made) numbered 0 through 9 are placed on the cards to complete the various activities. A teacher's guide explains the activities and contains additional blackline masters to assist with student evaluation.

Also available, although not evaluated, are Try-A-Tile activity cards for students up to Grade 8.

Set A (Grade 1 to 4)	Order No. 53558	\$28.50
Set B (Grade 2 to 6)	Order No. 53559	\$28.50
Set C (Grade 4 to 8)	Order No. 53636	\$28.50
Fraction Set (Grade 3 to 6)	Order No. 53679	\$28.50

Suggested Use: Grades 1 to 8

Other Uses: Middle Years Math

The Big Red Bus Ride (Print-Fiction). Peter Curry. (Collins Picture Lions). Collins Publishing Group (HCP), 1987. unp. ISBN 0-00-662895-8 (\$4.95 pbk.)

This is an easy-to-read storybook featuring simple maps, clocks, geometric shapes, patterns, colours and traffic signs. Colourful sequence of events and good samples of positional words are presented. The bus journey gives opportunities to count passengers taken on at every stop.

Suggested Use: Grades Kindergarten to 1

Big Time Bears (Print-Fiction). Stephen Krensky. Little, Brown and Company (LIT), 1989. unp. ISBN 0-316-50375-4 (\$18.95 hdc.)

This simple concept book gives examples of the passage of time including seconds, minutes, hours, days, weeks, months, years, decades and centuries. A bear family shows the daily activities of a typical family and demonstrates the passage of the various units of time.

Suggested Use: Grades Kindergarten to 2

Blockers and Finders II (Software). Wings for Learning (WINGS), 1990. Order No. 158202 (\$87.00)

This sequel to *Blockers and Finders* offers new problems to develop higher-order thinking skills. Available for IBM PS/2 and PS/2 Network and consisting of disk, backup and three-ring binder Teacher Guide, this software consists of four games with three levels of difficulty.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

Blue Monday and Friday the Thirteenth: The Stories Behind the Days of the Week (Print-Non-Fiction). Lila Perl. Clarion Books (ALL), 1986. 96 p. ISBN 0-89919-327-7 (\$20.95 hdc.)

In this resource the author has attempted to describe the cultural and linguistic origin of the days of the week and other frequently used phrases such as "dog days of summer" and "red-letter day." Each day of the week is featured in its own chapter with an abundance of myths, folklore, legends and superstitions associated with it. Liberally interspersed with black

and white sketches, the book is interesting and readable. While it does contain Indian studies content, some of the descriptions have suffered from over-simplification; in some cases authenticity has been compromised for readability.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

Building Toothpick Bridges (Print-Non-Fiction). Jean Pollard. (Math Project Series). Dale Seymour Publications (ADD), 1985. 28 p. Order No. 68290 (\$8.65)

Building Toothpick Bridges is a ten-day inexpensive project that makes math meaningful and real by allowing students to use arithmetic calculations and geometry to design, plan, and build scale model bridges. During the project, students will use the following math skills: estimate spatial configurations; estimate dollar amounts in the thousands; add and subtract seven-digit numbers; multiply and divide numbers of at least two digits; and measure using graph paper, ruler, and manipulatives. Also, they will learn to write cheques, balance accounts, maintain a task schedule and work cooperatively to attain a common goal. The teacher is facilitator, cheerleader, arbiter, warehouse manager, auditor, building code inspector, and judge. After the bridges are tested for strength the project ends with the presentation of awards and certificates.

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

Canadian Garbage Collectors (Print-Non-Fiction). Paulette Bourgeois and Kim LaFave. (In My Neighbourhood). Kids Can Press Ltd. (HMF), 1991. unp. ISBN 1-55074-042-3 (\$9.56)

This Canadian information picture-book features male and female garbage collectors working in a large metropolis. The information presented is relevant to children all across Canada, including rural areas. A number of real-world mathematics statistics are given: garbage collectors walk over 20 kilometres a day; families throw out 200 bags of trash a year; a garbage truck stops at 500 houses a day and carries up to 500 tonnes of garbage. Reduce, reuse and recycle hints are given. A humorous incident occurs when Mrs. Green has to rescue her false teeth from a garbage bag. Good correlation with primary social studies community workers units and science environmental units.

Suggested Use: Grades 3 to 4

Caretaker's Dilemma: Place Value (16 mm). (Math That Counts). Encyclopaedia Britannica Education (MHP), 1975. 10 min. Order No. MP 7109

This animated presentation emphasizes place values as one of the key ideas in mathematics. The ten symbols plus the place-value system make the expression of any number possible and simplifies addition. The film explains our numeration system.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Changing Scale on a Graph (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 15 min. Dup. Order No. V03696

Kaylin thinks Chenetta is improving more rapidly than she in doing situps until she realizes how scale affects her conclusions. Jack changes the scale on the salesman's graph and proves his "giant repellent" isn't needed.

Suggested Use: Grades 3 to 5

Charting the Course (Print-Non-Fiction). Jack Hope. Saskatchewan Instructional Development and Research Unit (SIDRU), 1990. 324 p. ISBN 0-7731-0183-7 (\$22.00)

This report is intended to set the stage for changing the Saskatchewan mathematics program in the elementary, middle and secondary grades. The key elements to be considered in revising the entire mathematics curriculum are specified. A summary of current trends in mathematics education and suggestions for the curriculum developer are provided. The book is well written, tied to experience and practice, and provides background information for teachers regarding the development, implementation and evaluation of mathematics.

Suggested Use: Teacher Reference

Other Uses: Middle Years Math/Secondary Math

Charts and Graphs: Fun, Facts and Activities (Print-Non-Fiction). Caroline Arnold. (Easy-Read-Geography Activity Book). Franklin Watts (GEA), 1984. 32 p. ISBN 0-531-04719-9 (\$13.50)

Aimed at the Grade 3 and 4 crowd, this book details the ways in which people use charts and graphs every day. Although American in origin, the author has included metric references where applicable. Graphs included are: pie, bar, block bar, line graph, pictograph, time line, as well as reading schedules and milage charts. Numerous fun activities for kids round out this book of charts and graphs. Table of Contents. Glossary. Index. Note - limited stock available.

Suggested Use: Grades 3 to 4

Clifford's Fun With Shapes (Videotape). (Scholastic Learning Library). Family Home Entertainment - Scholastic (SCH), 1988. 30 min. Order No. 01250-005 (VHS) (\$24.95)

Through this fun-filled story children are introduced to the shapes of circle, square, triangle and rectangle. Clifford and Emily Elizabeth participate in a scavenger hunt and are asked to find various shaped objects of different colours.

Suggested Use: Grades Kindergarten to 2

A Collection of Math Lessons From Grades 3 Through 6 (Print-Teacher-Reference). Marilyn Burns. The Math Solution Publication (ADD), 1987. 174 p. Order No. 19060 (\$25.80 pbk.)

Fourteen vignettes, spanning four grade levels, give practical examples of good math lessons. The author has shared her experiences with workable problem solving techniques featuring concrete manipulatives, cooperative heterogeneous groupings, and a variety of topics. The standard topics are covered and others too, such as geometry, measurement, probability and statistics. Each chapter includes directions for the task, the teacher and the students' reactions, and ideas for extension. The book is illustrated with samples of children's work. Marilyn Burns also wrote *The I Hate Mathematics! Book* and *Math for Smarty Pants* listed elsewhere in this bibliography. Also available, although not evaluated, is the same title for Grades 1 to 3.

Suggested Use: Teacher Reference

Comparing Decimals (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 15 min. Dup. Order No. V03694

Ned thinks he's lost his bid for the swim team until his brother, George, helps him compare decimals. Gulliver teaches the Weaklings how to compare the size of decimal numbers and proves to them their true strengths.

Suggested Use: Grades 3 to 5

Comparing Decimals (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02484

After reviewing place value, the program moves on to compare the size of two decimals and to order several from smallest to largest.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

The Complete Book of "Cube-A-Link" (Print-Teacher-Reference). Lynda Bowen. (Active Learning Series). Exclusive Educational Products (BB), 1989. BB 1665 (\$24.95 Grades K-4) BB 1667 (\$24.95 Grades 5-8)

Two versions of this resource are available: Primary (Grades K to 4) and Junior/Intermediate (Grades 5 to 8). Each three-ring binder contains over 100 activities and suggestions for teachers and students using linking cubes. Each resource consists of 72 pages of blackline masters, and optional stickers may also be ordered. The primary resource has as its focus activities for numeration, graphing, measurement, patterning, tiling and estimation. The

intermediate resource includes activities for spatial visualization, matching, logic, number patterns, estimation, volume, capacity, perimeter, surface area and quadracubes.

Suggested Use: Grades Kindergarten to 8

Other Uses: Middle Years Math

The Completed Hickory Dickory Dock (Print-Fiction). Jim Aylesworth. Atheneum (MMC), 1990. ISBN 0-689-31606-2 (\$16.95 hdc.)

This is a delightful extension of the Mother Goose rhyme Hickory Dickory Dock. The author completes the story of the mouse who ran up the clock when it struck one. Illustrated by the author of *Five Little Monkeys*, described elsewhere in this document, Eileen Christelow has captured the fun and nonsense of the rhyming verse. In each illustration the grandfather clock seems to be leaning to get into the picture, and we see the clock from the mouse's point of view. Numerous correlation possibilities with English Language Arts.

Suggested Use: Grades Kindergarten to 3

Other Uses: English Language Arts

Concrete Devices for Division 1 and 2 Math (Videotape). (Math In Service). SaskMedia (MHP), 1982. 20 min. Dup. Order No. V01681

The program introduces teachers to the different types of concrete devices that are available as teaching aids in the field of math for elementary and middle level students. It also gives ideas on how teachers can make some of these devices themselves. The program gives some brief examples of how the devices can be used and how the math classes can be organized to get the greatest value from manipulatives.

Suggested Use: Teacher Reference

Other Uses: Middle Years Math

Cooperative Learning Groups (Videotape). (Staff Development). Addison-Wesley (ADD), 1987. 20 min. Order No. 22334 (\$300.10)

The videotape has three parts: research data is presented on the importance of this teaching strategy, evaluation techniques are given, and cooperative learning groups are modeled. While the video is specifically designed for mathematics, the actual strategy is suitable for any subject area. Also included is a Leader's Guide with blackline masters, overhead transparencies and suggested activities. The resource is designed as an aid for staff development workshops.

Suggested Use: Teacher Reference

Cooperative Learning in Mathematics - A Handbook for Teachers

(Print-Teacher-Reference). Neil Davidson. Addison-Wesley (ADD), 1990. 409 p.
Order No. 23299 (\$38.15 pbk.)

This print resource contains original essays by educational leaders describing practical strategies for using cooperative learning in small group situations. The procedures described are realistic, practical strategies for using small groups in mathematics teaching and learning. These methods can be applied from Kindergarten to Grade 12 and all major topic areas in mathematics are covered. The book features a variety of cooperative learning strategies to address differing academic objectives. Suggestions are provided for implementing cooperative learning in heterogeneous classrooms. Sample activities and strategies for using computers with mathematics are described. This reference will appeal to all teachers wishing to expand their repertoire of available instructional strategies in mathematics.

Suggested Use: Teacher Reference

Other Uses: Middle Years|Secondary Math

Cooperative Team Learning (Videotape). Teaching, Inc. (TEA), 1988. 54 min. (\$149.00)

This video is an excellent introduction to the art of cooperative team learning in the classroom. The importance of this instructional strategy is discussed with numerous classroom examples. Class management techniques are described suggesting a variety of group sizes and components while task skills are modelled by teachers and students. Several examples are provided of the various ways in which teachers can employ cooperative groupings. The videotape also demonstrates various ways of evaluating the learning process. A booklet entitled *Managing a Cooperative Classroom* accompanies the video at no charge.

Suggested Use: Grades Kindergarten to 8

Other Uses: Middle Years Math

Count and See (Print-Non-Fiction). Tana Hoban. Macmillan Publishing Company (MMC), 1972. unp. ISBN 0-02-744800-2 (\$19.50 hdc.)

Photographs reinforce the number as word, as numeral, and as model and clearly show the numbers from one to fifteen, then 20, 30, 40, 50 and 100. Full page black and white photographs are presented opposite stark, white-on-black letters and numbers. A timeless counting book.

Suggested Use: Grades Kindergarten to 1

Count Me In: 44 Songs and Rhymes About Numbers (Print-Non-Fiction). A & C Black, London (MMC), 1984. unp. ISBN 0-7136-2622-4 (\$20.75 hdc.)

Forty-four songs and rhymes about numbers are presented in this British activity and songbook which features guitar chords and simple piano arrangements. A math index includes such entries as groupings in 2's, 3's, 10's, days of the week, pairs and size

comparison. An index of first lines is included. Most songs have teacher suggestions that provide additional activities and hints regarding accompanying actions and instruments.

Suggested Use: Grades Kindergarten to 5

Count on Clifford (Print-Fiction). Norman Bridwell. Scholastic Inc. (SCH), 1985. unp. ISBN 0-590-33614-2 (\$7.95)

Clifford the big red dog celebrates his birthday. This theme provides an opportunity for counting and number correspondence of numbers from 1 to 10. The usual humorous antics of this too-big puppy never fail to amuse and the party theme adds to the fun.

Suggested Use: Grades Kindergarten to 2

Countdown to New Math (Filmstrip Kit). Spoken Arts, Inc. (SHN), 1972. 10 min. each Order No. SAC-2016 (\$246.00 set)

This set of 10 filmstrips and audiocassettes, although old, has applications for today. It covers basic mathematics concepts such as classifying, counting, shapes, fractions, place value and sorting. The kit also contains a complete reading script, activity sheets and stencils.

Suggested Use: Grades Kindergarten to 3

Counting, Base and Place Value - Revised (Videotape). (Beginning Mathematics). Magic Lantern Films (MHP), 1987. 13 min. Dup. Order No. V03009

This videotape introduces counting, base and place value in practical, real-life situations. A series of everyday occurrences - in exchanging one ten for ten ones, and vice versa - enables students to understand counting and how it helps them in daily experiences. Place value is stressed as the key to our counting system, and its practical applications are illustrated.

Suggested Use: Grades 1 to 5

Counting Books Are More Than Numbers - An Annotated Action Bibliography (Print-Non-Fiction). Patricia L. Roberts. Library Professional Publications (MEA), 1990. 270 p. ISBN 0-208-02216-3 (\$52.00 hdc.)

Organized into related sections, and arranged alphabetically by author, this reference book contains annotations of math related titles from the past 30 years. Each annotation describes the plot, then lists the numeracy features of that book. Chapter headings are ABC and 123, Rhymes, Collections of Related Objects, and Collections of Unrelated Objects. A useful appendix further categorizes titles into operations, counting backwards, money and so

on. Indexed by author and title, this selection aid would be especially useful at the division level.

Suggested Use: Teacher Reference

Counting More and More (Big Book). Leland B. Jacobs. (Numbers in Rhyme). DLM Teaching Resources (DLM), 1990. 22 p. ISBN 1-55924-248-5 (\$36.95)

The final book in the *Numbers in Rhyme* series features three longer poems with varying themes. Fantasy is explored as life among the stars is considered. A dozen dancing ducks provide visual enjoyment and alliteration. Numbers too large to count are included in the form of raindrops. Incorporated throughout all of the poems are opportunities for language development experiences.

Suggested Use: Grades Kindergarten to 1

Counting One to Five (Big Book). Leland B. Jacobs. (Numbers in Rhyme). DLM Teaching Resources (DLM), 1990. 22 p. ISBN 1-55924-246-9 (\$36.95)

From the series *Numbers in Rhyme* this 22 page book in Big Book format contains a small collection of poems using numbers from "one to five". The rhyme and rhythm of each poem is simple yet effective. The number poems are springboards for language experience activities, and suggestions for additional activities are included inside the front cover.

Suggested Use: Grades Kindergarten to 1

Counting: Ourselves and Our Families (Print-Non-Fiction). Susan Jo Russell and Antonia Stone. (Used Numbers: Real Data in the Classroom). Dale Seymour Publications (ADD), 1990. 73 p. Order No. 1038 (\$15.25 each)

Counting: Ourselves and Our Families is one in a series of six such titles available for Grades 1 to 6. Each of the titles teaches students how to collect and analyze real-world data. Each book includes a series of investigations into specific topics. The activities offer concrete, hands-on activities suitable for small-group work and team problem solving. Other titles in the series are:

<i>Sorting: Groups and Graphs</i>	Grades 2 - 3	Order No. 1036
<i>Measuring: From Paces To Feet</i>	Grades 3 - 4	Order No. 1025
<i>Statistics: The Shape of Data</i>	Grades 4 - 6	Order No. 1026
<i>Statistics: Prediction and Sampling</i>	Grades 5 - 6	Order No. 1037
<i>Statistics: Middles, Means, and In-Between</i>	Grades 5 - 6	Order No. 1039

Suggested Use: Grades Kindergarten to 1 to 6

Other Uses: Middle Years Math

Counting Sheep (Print-Fiction). Barbara McGee. Annick Press Ltd. (FIR), 1991. 24 p. ISBN 1-55037-160-6 (\$4.95 pbk.)

Edward's grandmother suggests that he count sheep while trying to go to sleep. He counts them, reads to them, plays with them and finally falls asleep surrounded by their amorphous, fluffy forms. Canadian author Barbara McGee has created this bedtime picture-book with much of the humour tucked away in the soft watercolour illustrations.

Suggested Use: Grades Kindergarten to 1

Counting Six to Ten (Big Book). Leland B. Jacobs. (Numbers in Rhyme). DLM Teaching Resources (DLM), 1990. 22 p. ISBN 1-55924-247-7 (\$36.95)

Small book replicas of all of the Big Books in the series *Numbers in Rhyme* are also available, but the large format is especially attractive to young readers. *Counting Six to Ten* is the middle book in this series. Like the others it features a table of contents, five short poems and huge, colourful illustrations.

Suggested Use: Grades Kindergarten to 1

Counting Wildflowers (Print-Non-Fiction). Bruce McMillan. Lothrop, Lee & Shepard Books (MCM), 1986. unpag. ISBN 0-688-02860-8 (\$19.95 hdb.)

Stunningly beautiful photographs of American wildflowers were used to illustrate this counting and colour identification concept book. Each page presents a photograph of a different wildflower. Beneath the photo is the numeral, the number word and colour-coded circles corresponding to the number of wildflowers pictured. Possibilities for estimation are evident. A two-page addition at the end tells older readers how the flowers were photographed and lists each wildflower's common and scientific name. The natural habitat of each of the 20 wildflowers is described and the approximate months in which they could be located.

Suggested Use: Grades Kindergarten to 1

Creative Cube (Software). Wings for Learning - Sunburst (WINGS), 1990. Order No. 340102 (\$87.00) (Lab pack [10] \$255.00)

Using inference, spatial reasoning and deduction, students search for creatures hidden in three-dimensional cubes. The program develops geometric awareness by practicing locating these objects with directives such as up, down, back, forward, all the while developing logical thinking skills. The software examined includes two 5 1/4" disks and a 54-page teacher's guide in three-ring binder format.

Suggested Use: Grades 4 to 12

Other Uses: Middle Years Math|Secondary Math

Creative Problem Solving in School (Print-Teacher-Reference). George Lenchner. Houghton Mifflin Company (HMF), 1983. 295 p. Order No. 2-33060 (\$29.12)

Rich and exciting problem solving activities are presented in this resource. Written primarily for Elementary and Middle Years teachers, but appropriate for Secondary mathematics teachers as well, this resource is divided into three sections: Part A suggests successful teaching techniques, Part B highlights commonly used strategies and Part C examines problem solving in relation to standard topics in the mathematics curriculum. Chapter titles include Problem Solving Strategies, Teaching Problem Solving, Topics in Problem Solving and a special section entitled Resource Problems. This section is comprised of a hundred problems with solutions, originally written by the same author for *Mathematical Olympiads for Elementary Schools*. The appendices contain answers to all the problems in the book. Index.

Suggested Use: Teacher Reference

Other Uses: Middle Years Math|Secondary Math

Creative Teaching in Early Childhood Education: A Sourcebook for Canadian Educators and Librarians (Print-Non-Fiction). Bonnie Mack Flemming, et al. Harcourt Brace Jovanovich (CMG), 1988. 567 p. ISBN 0-7747-3095-1 (\$37.95 pbk. U.S.)

Preschool and early primary suggestions, activities, aids and devices are contained in this quick reference for basic information about many subjects in a practical, scannable format. This Canadian version lists extensive, readily available resources of Canadian content. A thematic approach is employed. Material in the text recognizes the multicultural nature of the Canadian society, however terms used for Indian and Métis peoples are dated. The resource includes basic understandings, methods for introducing topics, ideas for learning centres, and activities for group time including games, stories, songs, large muscle activities, routine times, extended experiences, and poems. The final chapter of the book is very specific to mathematics.

Suggested Use: Grades Kindergarten to 2

Other Uses: Elementary Science

Curriculum and Evaluation Standards for School Mathematics (Print-Teacher-Reference). Working Groups of the Commission on Standards for School Mathematics. National Council of Teachers of Mathematics (NCTM), 1989. 258 p. ISBN 0-87353-273-2 (\$25.00)

This American resource is a compilation of articles prepared by the Working Groups of the Commission on Standards for School Mathematics of the National Council of Teachers of Mathematics. The document provides support for mathematics teachers at any grade level. The articles discuss curriculum standards for all grades. There is also a complete section on evaluation standards that details both student assessment and program evaluation. The resource is a companion volume to *Professional Standards for Teaching Mathematics* described elsewhere in this document.

Suggested Use: Teacher Reference

Other Uses: Middle Years Math|Secondary Math

A Decalogue for Teaching Mathematics (Print-Teacher-Reference). Carrol E. DeBower and Kari L. DeBower. (PDK Fastback). Phi Delta Kappa Educational Foundation (PDK), 1990. 38 p. ISBN 0-87367-309-3 (\$.90 pbk. plus \$3.00 shipping)

A father-daughter team collaborated to write this compact document which contains 10 guidelines for mathematics teachers. Written in the format of the 10 commandments, the authors discuss manipulatives, diagnostic analysis, drill and practice, computers and calculators, mental math, probability and statistics, integration, problem solving, and algebra and geometry. Applicable to all grade levels, these discussion-starters are based on current research.

Suggested Use: Teacher Reference

Other Uses: Middle Years Math|Secondary Math

Deciding When to Use Multiplication (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03677

Houston makes mistakes in his job at the rabbitry but soon learns that equal groups are required for using multiplication. The wicked queen loses a contest because Snow White knows when to multiply.

Suggested Use: Grades 3 to 5

Deciding When to Use Subtraction (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03672

In a can-collecting contest Houston learns that comparing the size of one group with another requires subtraction. The greedy Prince is bested when he tries to compare two numbers without subtracting.

Suggested Use: Grades 3 to 5

Decimal Discovery (Software). (Arcademic Intermediate Math). DLM Teaching Resources (DLM), 1986. ISBN 0-89505-382-9 (\$49.95)

Warranted for six months from date of purchase, this Apple software program includes one 5 1/4" diskette and one user's guide using an oil exploration setting. The software features challenging decimal games which provide practice in comparing, adding, subtracting, multiplying and dividing with decimals. The teacher can view the 10 most recent records of up to 40 students, and can act as editor to write custom problems. The teacher can generate worksheets featuring built-in game problems. The response analysis feature reviews each problem, score, and other response information that can help determine a student's strengths and weaknesses. While the content is strictly abstract, it does encourage

estimation indirectly. Caution: points can be gained for trial and error answers with no actual calculations being done.

Suggested Use: Grades 4 to 12

Other Uses: Middle Years Math|Secondary Math

Decimals by Chance (Software). Wings for Learning (WINGS), 1990. Order No. 360602 (\$87.00)

Decimals by Chance is computer assisted instruction designed to provide drill and practice with decimal numbers. Drills include practice within the base ten number system and using mental math strategies on the four basic arithmetic operations. The program allows two students to compete (or one student to compete against the computer). These competitions involve arranging the digits 0 to 9 by size, or listing specific numbers from 0 to 9, or playing a dice game with the digits 1 to 6 randomly selected by the computer. Teacher options include customizing the game to meet specific needs and controlling the volume.

The package includes one 5 1/4" diskette with back-up and one teacher's guide. It is available for the Apple or Apple IIGS computers.

Suggested Use: Grades 3 to 5

Deep Down Underground (Print-Fiction). Olivier Dunrea. Macmillan Publishing Company (MMC), 1989. unp. ISBN 0-02-732861-9 (\$19.50 hdc.)

The Scottish word for mole is moudiewort, and in this resource we are introduced to this creature as he and several other scurrying, wriggling insects and other creatures dig "deep down underground." The attractive pen-and-ink with watercolour illustrations and picturesque, repetitive language provide a valuable means of integrating science, language arts, and mathematics. This is a cumulative counting book.

Suggested Use: Grades 2 to 4

Demolition Division (Software). (Arcademic Skill Builders in Math). DLM Teaching Resources (DLM), 1982. ISBN 1-55924-009-1 (\$49.95)

This software for Apple II/Ile computers provides practice with division facts using the numbers 0 through 9. The software features fast-action, colourful graphics and a compelling arcade battleship game format. Other programs in the series reinforce the basic arithmetic facts of addition, subtraction and multiplication. The package is drill and practice in nature and includes teacher's manual, 5 1/4" floppy diskette, instruction sheet, 52 flashcards and 12 blackline masters. Teacher controls include speed, timing and level of difficulty.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Developing Number Concepts Using Unifix Cubes (Print-Teacher-Reference). Kathy Richardson. Addison-Wesley (ADD), 1984. 298 p. Order No. 06117 (\$27.27 pbk.)

This resource contains hundreds of suggestions for using linking unifix cubes. The dense, textbook format includes a systematic presentation of the ways in which teachers can initially introduce the cubes and describes the manner in which mathematical concepts can be taught using the cubes. Several activities are given for many mathematical concepts, and the activities are of two kinds: teacher-directed or independent student activities. Guidelines given at the end of each chapter help the teacher assess the learning that has taken place.

The resource has grade specific chapters for Kindergarten through Grade 3 and beyond. Two additional sections are "The Materials and their Preparations" and "Blackline Masters" with perforated pages. Model classroom organizational techniques are woven into the presentation of the activities, and an assessment program is provided. Numerous black and white sketches make this resource very user-friendly.

Suggested Use: Teacher Reference

Dimensions (16 mm). National Film Board (MHP), 1966. 12 min. Order No. MP 5074

This is an animated wordless film in which simple actions achieve surprising results. A man wants a door in a wall; he draws a rectangle, and presto, there is an opening. In the same way he conjures up furnishings. If too high or too low, a raising or lowering of a finger puts everything right. The film is a lesson in proportions.

Suggested Use: Grades 3 to 5

Dividing With Decimals (16 mm). (Elementary Math for Teachers and Students). Davidson Films Inc. (MHP), 1970. 9 min. Order No. MP 5075

A bird who navigates by a fraction map flies to the French Riviera for the summer. He plans each part of the journey by dividing up the distance to be traveled. He divides whole numbers by whole numbers, decimals by whole numbers, and decimals by decimals.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Division - Revised (Videotape). (Beginning Mathematics). Magic Lantern Films (MHP), 1987. 13 min. Dup. Order No. V03008

Experiences supported by graphics and animation demonstrate additional concepts about division - it is the opposite of multiplication, it is repeated subtraction, and the multiplication table helps us learn the division facts. The program also explains the roles of zero and one

in division, that division is neither commutative nor associative, and in division, there is sometimes something left over called a remainder.

Suggested Use: Grades 1 to 5

DLM Math Fluency Program - Addition Facts (Software). DLM Teaching Resources (DLM), 1989. ISBN 0-89505-773-5 (\$32.95)

One of four such programs in the series, this Apple II computer program consists of one 5 1/4" teacher utility disk, one 5 1/4" student disk, and a user's guide. The program provides systematic drill and practice with basic addition facts from 0 - 9 or 0 - 12. Features include the ability to set program options, view and print progress reports, print worksheets and other disk management options.

Suggested Use: Grades 1 to 5

DLM Math Fluency Program - Division Facts (Software). DLM Teaching Resources (DLM), 1989. ISBN 0-89505-788-3 (\$32.95)

The *DLM Math Fluency Program - Division Facts* is one of four such programs in the series. Designed for the Apple II computer family, this software package consists of a 5 1/4" teacher's utility disk, a 5 1/4" student disk, and a user's guide. Through a program of systematic instruction and practice, and students using their own assigned disk, progress is monitored and an individualized program chosen for division facts from 0 to 9 or 0 to 12. The teacher's utility disk offers options for viewing and printing progress reports and printing worksheets.

Suggested Use: Grades 2 to 5

DLM Math Fluency Program - Multiplication Facts (Software). DLM Teaching Resources (DLM), 1989. ISBN 0-89505-783-2 (\$32.95)

One of four programs in the series, this Apple II family program provides drill and practice of multiplication facts from 0 - 9 or 0 - 12. The program monitors student progress and makes adjustments based on performance. A user's guide, 5 1/4" teacher's utility disk and 5 1/4" student disk make up the complete package.

Suggested Use: Grades 2 to 5

DLM Math Fluency Program - Subtraction Facts (Software). DLM Teaching Resources (DLM), 1989. ISBN 0-89505-778-6 (\$32.95)

This Apple II family program consists of a teacher's utility disk, 5 1/4" student disk and a user's guide. The program *Subtraction Facts* is one of four programs in the series. This

program provides drill and practice for instant recall of basic math subtraction facts. At the teacher's option, the program provides instruction on facts from 0 - 9 or from 0 - 12. The program monitors student progress as scores are saved on the student disk. Each student must have his or her own disk.

Suggested Use: Grades 1 to 5

Donald in Mathmagic Land (16 mm). Walt Disney Productions (MHP), 1960. 26 min.
Order No. MP 5973

Donald Duck finds himself in Mathmagic Land where the ancient Greeks tell about some of their basic mathematic principles. In successive sequences, Donald discovers how mathematics is related to music, art, architecture, mechanics and games.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

The Doorbell Rang (Big Book). Pat Hutchins. Scholastic (SCH), 1986. unp.
ISBN 0-590-71939-4 (\$4.38 pbk.) ISBN 0-590-71939-4 (\$29.95 Big Book)

The Big Book format is especially appealing for this story that tells how 12 cookies are shared by 2, 4, 6 and finally 12 children. Numerous opportunities are presented to discuss sharing, fractions, dividing and patterning.

Suggested Use: Grades 1 to 2

Other Uses: English Language Arts

Dragon Mix (Software). (Arcademic Skill Builders in Math). DLM Teaching Resources (DLM), 1982. ISBN 1-55924-011-3 (\$49.95)

This Apple software program consists of one 5 1/4" disk, 52 flashcards, 12 blackline masters and one teacher's manual. *Dragon Mix* is one of six programs in the Arcademic Skill Builders Series. It provides practice in both multiplication of numbers 0 through 9 and division of numbers with answers 0 through 9. A dragon is protecting a city and each incorrect answer allows the enemy to come closer while each correct answer halts the attack. The diskette is programmed so that you can change the parameters of the game: adjustable are skill levels, problem range, duration of game and whether keyboard or paddles will be used.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Drawing and Interpreting Tables and Diagrams (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02575

Members of the sixth grade photography club have trouble fitting their equipment into a makeshift darkroom. To help visualize spacing, Josh and May put cutouts of their furniture

on a diagram of the room. Sally and Steve compile a table to organize repetitive information about shutter speeds, aperture settings and light meter readings. This program contains excellent subject matter to be used in mathematics or science.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math|Elementary Science

An Early Start to Mathematics (Print-Teacher-Reference). Roy Richards and Lesley Jones. (Early Start). Simon & Schuster (SES), 1990. 64 p. ISBN 0-7501-0034-6 (\$26.95 pbk.)

Full colour artwork in this highly pictorial resource will assist primary teachers to introduce practical, relevant mathematical activities. As with other books in this series, this British resource does use some foreign terminology, e.g., pence in the money section, oblong for rectangle, and it refers to infant and first schools. Regardless, it contains numerous suggestions in the area of numbers, shapes, measurement and data handling. It also illustrates the Biblical measurements of cubits and spans. Some stereotypical illustrations and activities are used for Aboriginal peoples.

Suggested Use: Grades Kindergarten to 3

Education Goes Outdoors (Print-Teacher-Reference). Frank A. Johns, Kurt Allen Liske and Amy L. Evans. Addison-Wesley (ADD), 1986. 188 p. Order No. 20471 (\$24.61 pbk.)

This is a contemporary resource designed to provide teachers with numerous learning experiences in many subject areas including math, language arts, social studies, arts education, and science. Math suggestions include: hike for counters, count a thousand walk, pace and space, geometric pattern search, going around in circles, the shadow knows and others. Each activity has a clearly defined purpose, description, materials list and suggestions for optional or extended activities. Table of Contents. Bibliography. Also listed for Elementary Science.

Suggested Use: Grades Kindergarten to 5

Other Uses: Elementary Science

Estimating by Rounding (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02475

Emphasizing the usefulness of rounding in estimation, this program looks at when and how to round up or down.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Estimating When Dividing (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 15 min. Dup. Order No. V03693

Houston wants to divide the squash harvest with the garden club, but gets strange results until he learns to estimate first. Estimation helps young Wong compute his equal share of the emperor's pearls.

Suggested Use: Grades 3 to 5

Estimation Strategies for Division (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02585

To pay for team uniforms, two young baseball players estimate the number of candy bars each needs to sell per hour. They use front numbers and friendly numbers to find the general range in which their answers will fall.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Estimation Strategies for Multiplication (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02581

On a canoe trip, three friends learn to estimate distances between campgrounds by rounding numbers and then multiplying mentally. To make estimation fast and easy, they multiply only the first digits of the numbers and then affix the proper number of zeros. Viewers learn useful estimation strategies such as rounding, "betweenness," and front digits.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Estimation: Quick Solve I (Software). Minnesota Educational Computing Corporation (MECC), 1990. Order No. 258 (\$64.45)

This software provides opportunities for visual and computational estimation for upper elementary students. The program is a challenging, entertaining method of pitting a student against a built-in opponent or another student in a contest of estimating using whole numbers, fractions, decimals or percentages. The program provides immediate feedback by illustrating a correct range of answers with the student's answer plotted in relation to this range. The program includes a teacher's guide and 5 1/4" disk. Also available in 3 1/2" disk.

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

Explorations (Print-Non-Fiction). Betty Coombs, et al. Addison-Wesley (ADD), 1985.

Explorations is a mathematics program based on a commitment to learning through the manipulation of concrete materials and interaction with the environment. The program has been designed for Kindergarten, Grade 1 and Grade 2 students. Activities have been designed and spiralled to provide repeated exposure to various strands of mathematics: problem solving, number, and geometry, measurement and operations.

Explorations for Early Childhood, the first activity book in this series, features a Teacher's Resource Book with Blackline Master package. This package provides circle activities for the entire group and centre activities for learning stations. Such activities include Art, Block, Dramatic Play, Water, Math and Science Centres. Finger play rhymes are provided. Sample letters to parents suggest home activities to reinforce concepts explored at school. Activities which work toward developing students' understanding of time may need to be adapted to meet the needs of very young children.

Explorations 1 and 2 feature a sequenced program of instruction for five strands of mathematics: problem solving, geometry, number, measurement, and operations. Detailed suggestions are given for observation and evaluation techniques. An annotated bibliography of children's literature titles provide for integration and motivation with other subject areas such as language arts, science, social studies, music, visual art and physical education. A set of blackline masters accompanies the teacher's resource manual. Optional student activity books *Ted is My Friend* and *Let's Explore* are described elsewhere in this document.

Explorations for Early Childhood	BB 824	\$ 94.95
Explorations 1	BB 5472	\$109.95
Explorations 2	BB 5473	\$109.95

Suggested Use: Grades Kindergarten to 2

Exploring Geometric Shapes (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02474

Ordinary three-dimensional objects are analyzed to identify their two-dimensional components.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Exploring Measurement, Time, and Money - Level I (Software). IBM Canada Limited (IBM), 1989. ISBN 6024870 (\$169.40)

Level 1 of *Exploring Measurement, Time, and Money* is an IBM software package consisting of four 3 1/2" diskettes and a three-ring binder teacher's guide. The three programs are "Measure It" which uses comparison, measurement, and bar graphs to show data, "Talking Clock" which teaches various elements of telling time, and "Moneyboard and

Stickerstore" which provides practice counting money, reading price tags, paying for items and making change. The programs do not rely on students' reading skills for their operation. Speech is used to present hints, questions, and responses. When students complete a problem, the computer speaks to them and tells them how they did.

Suggested Use: Grades Kindergarten to 2

Exploring Measurement, Time, and Money - Level II (Software). IBM Canada Limited (IBM), 1990. ISBN 6280354 (\$169.40)

Exploring Measurement, Time, and Money - Level II is an IBM software package consisting of 3 - 3 1/2" diskettes and a Teacher's Guide in three-ring binder format. This package consists of three programs providing practice with measurement, time, and either Canadian or American money.

"Measure Up!" is a program that provides a tool for creating, editing, and displaying tables and bar graphs. Students perform a variety of measurement projects, at one level, in a step-by-step tutorial.

"It's About Time" is an exploratory activity, with four levels of difficulty, in which students examine an analog clock, write digital times, and calculate elapsed time.

"Making Sense of Money" enhances students' understanding of money by providing four levels of practice problems using coins and bills. Students make and count change using optional Canadian or American currency.

Suggested Use: Grades 2 to 4

Exploring Measurement, Time, and Money - Level III (Software). IBM Canada Limited (IBM), 1990. ISBN 6280357 (\$169.40)

This IBM computer software package contains three programs: "Measurement Recording Tool", "Problem Solving with Money", and "Calcu-Table". The first program allows students to carry out measurement problems by providing a tool for recording, analyzing, and graphing different kinds of measurement data. In the second program students work with bills and coins to solve problems. The third program helps students use problem-solving skills to answer measurement, time, and money word problems and to convert measurement data from one unit to another. It also provides a tool for organizing and performing calculations on data in a table. The program consists of one 3 1/2" diskette, and a three-ring binder with additional teacher support in the form of reproducible masters. Each activity operates at several levels of difficulty. Teacher option menus control these features.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Exploring the Movement of Objects in Space (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02482

Beginning with apparent changes in the shape of a three-dimensional object as it turns, flips and slides in space, this program helps viewers predict specified movements of an object in space.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Farm Counting Book (Print-Non-Fiction). Jane Miller. Simon & Schuster (MUS), 1983. 24 p. ISBN 1-330-4809-8 (\$6.95 pbk.)

Full colour photographs of a wide variety of farm animals are featured in this counting book with numerals from one to ten. Each photo is framed in black and surrounded by a bright yellow border with a large red numeral and number words - "five cows." Also listed in the Elementary Science bibliography.

Suggested Use: Grades Kindergarten to 1

Other Uses: Elementary Science

Farmyard Counting Book (Print-Fiction). Judy Brook. Andre Deutsch (SCH), 1990. unp. ISBN 0-233-98468-2 (\$14.95)

This counting book features Bob, a sheep dog, counting farmyard animals from 0 to 10. Although the British term "nought" is used for zero, the resource is a simple counting reference with good quality paper binding and bright, colourful illustrations. Correlates well with primary science.

Suggested Use: Grades Kindergarten to 3

Other Uses: Elementary Science

Fast-track Fractions (Software). (Arcademic Intermediate Math). DLM Teaching Resources (DLM), 1986. ISBN 0-89505-383-7 (\$49.95)

Consisting of one 5 1/4" diskette and one user's guide, this Apple software features a car race format that provides practice in comparing, adding, subtracting, multiplying and dividing with fractions. Students focus on randomly generated problems and the user selects the level of difficulty. Teacher options include the flexibility to select game content, speed, length of game and the response mode. The teacher may also generate custom-made worksheets and review the 10 most recent records of up to 40 students. The game is abstract, and completely adaptable even for special needs students. A caution: points can be earned for pressing any key; trial and error answers or wild guesses still score points.

Suggested Use: Grades 4 to 12

Other Uses: Middle Years|Secondary Math

Favorite Problems (Print-Non-Fiction). Dale Seymour. Dale Seymour Publications (ADD), 1982. 98 p. Order No. 68337 (\$35.35)

Favourite Problems is a book of 48 reproducible problems with complete solutions and teaching ideas. Each problem contains a comical visual aid and a simply-stated problem. The flipside of each page contains detailed explanations, hints, suggestions, the actual solution, and extension activities. Longtime favourites such as Pascal's triangle and Gauss's sum are sample problems. The book is a rich source of problems for students to solve logically and systematically, especially as enrichment.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

Filbert and the Melon Cheater: Subtraction with Borrowing (16 mm). (Math That Counts). Encyclopaedia Britannica Education (MHP), 1975. 10 min. Order No. MP 7167

Students gain an understanding of two-digit subtraction with borrowing in this humorous tale about the problems of an honest melon merchant. The film provides a clear model for subtraction of two-digit numbers.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Finding Area by Covering (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 12 min. Dup. Order No. V03691

After several false starts, the Vulcans use square carpet tiles to measure the area of their clubhouse floor accurately. Goldilocks finds equal-sized squares measure the area of her bedspread better than round cookies do.

Suggested Use: Grades 3 to 5

Finding Equivalent Fractions (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03690

Knowing how to determine if a part of something is equal to a part of something else helps Cliff on the microcomputer and at a pizza parlour. Robin Hood outsmarts the sheriff, the duke, and wicked Prince John with equivalent fractions.

Suggested Use: Grades 3 to 5

First Steps to Mathematics - A Guide for Parents and Teachers to Beginning Math Activities (Print-Teacher-Reference). Sidney L. Rachlin, et al. Braun and Braun Educational Enterprises, Ltd. (BRA), 1984. 105 p. ISBN 0-9690605-1-3 (\$13.50 pbk.)

This resource, written by Calgary educators, contains numerous activities with a

problem-solving approach. It provides mathematical activities for parents and teachers that use everyday experiences of young children to learn about number, space and measurement. Appendices contain suggestions for finding out about space, measurement and number. Sample letters to parents, finger plays and rhymes that use number are included, and recipes with metric measurements are provided.

Suggested Use: Teacher Reference

Fish Eyes: A Book You Can Count On (Print-Non-Fiction). Lois Ehlert. Harcourt Brace Jovanovich (CMG), 1990. unp. ISBN 0-15-228050-2 (\$13.95 hdc.)

Fish Eyes is a vividly coloured counting book that features cut out eyes and brightly coloured paper collage fishes. A child imagines the fish he might see around him if he turned into a fish himself. Told in rhyme and asking rhetorical questions throughout, this bright book is both a counting and a simple addition book for numbers up to 10.

Suggested Use: Grades Kindergarten to 3

Five Little Monkeys Jumping on the Bed (Print-Fiction). Eileen Christelow. Clarion Books (ALL), 1989. unp. ISBN 0-89919-769-8 (\$19.95 hdc.)

The predictable nature of this favourite old nursery rhyme is retold here with sing-song lyrics and full colour illustrations. There are opportunities to practice sequencing, and count backwards from five, and the book lends itself naturally to language arts activities such as choral speaking, dramatization and pattern writing.

Suggested Use: Grades Kindergarten to 2

Other Uses: English Language Arts

Five Little Monkeys Sitting in a Tree (Print-Fiction). Eileen Christlow. Clarion Books (ALL), 1991. unp. ISBN 0-395-54434-3 (\$21.95 hdc.)

Before our eyes, one, two, three, four, five little monkeys disappear, only to reappear when we least expect them. Subtraction is demonstrated in this story which gives hints for proper behavior around crocodiles. Like her other stories, the vividly-coloured action-illustrations and comical theme add to this counting book.

Suggested Use: Grades Kindergarten to 2

Forming Ratios (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No.V02496

This program demonstrates what a ratio is, how to express ratio in particular examples, when

ratio might be used, and what specific ratios mean in specific situations.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Fraction Fuel-Up (Software). DLM Teaching Resources (DLM), 1985.
ISBN 0-89505-296-2 (\$49.95)

The *Fraction Fuel-Up* Apple software package consists of one 5 1/4" disk and a user's guide. The focus of the program is the accurate solving of fraction word problems. Correct answers earn points; there is no time limit. Equivalent fractions, mixed numbers with the same or different denominators, and the addition and subtraction of fractions are the key problems. The routine is drill and practice with animated rewards.

Suggested Use: Grades 5 to 9

Other Uses: Middle Years Math

General Store (Print-Fiction). Rachel Field. Greenwillow Books (MCM), 1988. unp.
ISBN 0-688-07353-0 (\$20.50 hdc.)

Watercolour and coloured pencil illustrations by Nancy W. Parker create a charming general store, circa 1920, in keeping with the era in which this poem was written. Rhyming couplets describe the dreams of a young girl as she plans the store she will own one day and all the items she will display within. The book presents an opportunity for comparison of stores past and present, their prices and containers.

Suggested Use: Grades Kindergarten to 3

Other Uses: English Language Arts

Geoboard Activity Cards: Primary Level (Activity Cards). Alan Barson. Scott Resources (SCT), n.d. Order No. 0562 (\$27.95 U.S.)

The set is comprised of 140 12 x 18 cm cards that give suggestions and activities for primary students to use with geoboards. The set is divided into 12 distinctly different sections such as area, perimeter, shapes and designs. Reading skills are not required and the cards encourage hands-on exploration. Each card illustrates a formation to be made by the student using differently coloured elastics. Cards are numbered but may be used in any order. Each section, however, appears to become progressively more difficult.

Suggested Use: Grades Kindergarten to 3

The Geoboard Collection: An Adventure in Mathematics - Junior Level: Grades 4-6 (Print-Teacher-Reference). Julian D'Angela and Paul Lessard. (Active Learning Series). Exclusive Educational Products (BB), 1990. 80 p. BB 826 (\$30.00)

The Geoboard Collection: Junior Level contains approximately 80 pages of activities in workcard format on blackline master sheets. Contained in a three-ring binder, the activities

involve students in visual and concrete experiences on various geoboards using number, geometry and measurement.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Geometry in Our World (Slides). John Engelhardt (Editor). National Council of Teachers of Mathematics (NCTM), 1987. ISBN 0-87353-2430-0 (\$75.00)

Geometry in our World is a collection of 200 instructional slides with commentaries depicting geometrical concepts, relationships, and principles in our environment. Thematic in approach, the collection varies in scope: it incorporates architectural aspects, art forms, abstract curves, modular arithmetic, and symmetrical designs. Ten distinct chapters of slides are presented: points, planes, lines and angles; polygons; polyhedra; circles; cylinders, spheres, cones; symmetry; transformations; tessellations; similarity; and curves.

Suggested Use: Grades Kindergarten to 12

Other Uses: Middle Years|Secondary Math

Geometry - What's That? (16 mm). Coronet Instructional Films (MHP), 1975. 11 min. Order No. MP 7473

This film examines various aspects of geometry. Through animation and diagrams it shows how geometric techniques are used to measure concrete objects as well as areas of space and infinity. It defines point, line, plain space, sets and subsets.

Suggested Use: Grades 5 to 9

Other Uses: Middle Years Math

Germey Blew It (Print-Fiction). Rebecca C. Jones. E. P. Dutton (VAN), 1987. 105 p. ISBN 0-8167-1314-6 (\$3.95 pbk.)

Entrepreneur Jeremy Bluett, or "Germey Blew It" as he is affectionately dubbed, misses the opportunity to appear on television when he is absent the day the local T.V. station visits his fifth grade class. Inspired by the claim that everyone is destined for 15 minutes of fame sometime, Jeremy sets out to win his share of the limelight by organizing a bubble-gum blowing contest. Numeracy enters the picture when Jeremy collects entry fees, invites a hundred contestants to his home, and spends most of the money buying "practice" bubble-gum for himself. Jeremy quickly learns how his problems can multiply, but it all adds up to fun.

Suggested Use: Grades 3 to 5

Other Uses: English Language Arts

Get it Together: Math Problems for Groups - Grades 4 - 12 (Print-Non-Fiction). Tim Erickson. Equals (LHS), 1989. 180 p. Order No. EQL 115 (\$15.00 pbk. U.S.)

This coilbound softcovered resource strongly utilizes the instructional strategy of cooperative

learning. Each of the more than 100 problems presented is intended to be solved cooperatively by a group of students. The resource consists of pages that are meant to be photocopied, cut and pasted onto cards and given to each member of the group, each member thereby receiving different information to be shared appropriately with the whole group. A wide variety of problems is presented, with varying degrees of difficulty. Class management techniques are given and suggestions provided for creating your own problems. The resource contains teacher tips on organizing a cooperative classroom.

Suggested Use: Grades 4 to 12

Other Uses: Middle Years Math|Secondary Math

Getting "Eggcited" About Math (Print-Non-Fiction). Betty Stott. STF Teaching Materials Centre (STF), 26 p. No order no. (\$1.15)

A variety of suggestions for large group, small group and individual activities, this booklet contains numerous ideas for the Kindergarten to Grade 2 math teacher. The author's ideas are clearly and concisely explained. Bibliography.

Suggested Use: Grades Kindergarten to 2

The Ghost of Captain Peale: Linear Measurement and Mapping with Metric Units (16 mm). (Math That Counts). Encyclopaedia Britannica Education (MHP), 1976. 11 min. Order No. MP 7001

This film is designed to acquaint students with the concept of linear measurement using SI. It helps to familiarize viewers with the standard metric units of mapping and scale drawings. Units introduced are the kilometre, metre and centimetre. It is useful in the introduction of linear units whether in mathematics or science. It shows the ease of converting from one metric unit to another.

Suggested Use: Grades 3 to 9

Other Uses: Middle Years Math

The Gingerbread Man (Print-Fiction). Nichola Armstrong. J.M. Dent & Sons Ltd. (FHW), 1987. ISBN 0-460-06246-8 (\$19.95 hdc.)

Exquisite paintings detail this rendition of an old favourite. The setting is reminiscent of an English country garden with spinning wheel, butter churn, scrub tub and wheat stooks in evidence. The fox is beautiful and as tricky as ever. This is an introduction to fractions as half, then three-quarters, then all of the gingerbread man is gobbled up by the fox. All of the plants and animals seen in the illustrations are also featured on the end-papers with their names including foxglove, creeping thistle, waterlily, pheasant, mallard and mole.

Suggested Use: Grades 2 to 4

Other Uses: English Language Arts

Ginn Extension Mathematics (Print Kit). Ginn Publishing Canada Inc. (GIN), 1988.

Colourful caption books introduce, reinforce, or extend early mathematical concepts and mathematical vocabulary. Three sets of books, each with six titles, cover the topics of Relationship, Matching, and Number. Each set may be purchased separately. Accompanying the individual books is one teacher's manual called "Readers Resource" which contains support materials in the form of 48 blackline masters directly related to the subject matter of the small books.

Relationship: Order No. U24658 \$29.95

Titles: *Large and Small, Lucky Lee, Bruno and Biff, Kate and Kitty, Minnie and Mokie, Clarence the Cat*

Matching: Order No. U24660 \$29.95

Titles: *Matching Maurice, Pairs At the Pool, One-to-one, Paul and Paula, Helping Hilda, Odd One Out.*

Number: Order No. U24656 \$29.95

Title: *One Duck, Smart Sheep, By the Pond, In the Jungle, At Monkey Fair, The Circus in Town.* Teacher's Blackline Masters U24659 \$59.95

Suggested Use: Grades Kindergarten to 1

Go Metric (Print-Non-Fiction). Dr. James E. Beamer, et al. STF Teaching Materials Centre (STF), n.d.. 46 p. (\$1.50)

Metric math activities are suggested in this 46 page STF document. Numerous activity cards provide opportunities to learn and practice the metric system. Good local examples include mileage/kilometrage charts of Canadian and Saskatchewan cities. A bibliography of metric readings is included.

Suggested Use: Grades 1 to 9

Other Uses: Middle Years Math

A Grain of Rice (Print-Fiction). Helena Clare Pittman. Hastings House (BCN), 1986. 40 p. ISBN 0-8038-2728-8 (\$19.50 hdc.)

Black and white sketches on every page help to tell this ancient Chinese folktale that has mathematical overtones. The suitor, a clever but poor farmer's son, is refused the opportunity to marry the Emperor's daughter until he outsmarts the Emperor by accepting a single grain of rice, to be doubled each day for 100 days, instead of the princess. Within days the Emperor discovers that granting this seemingly insignificant wish will bankrupt the empire. The suitor's wish is granted immediately.

Suggested Use: Grades 3 to 5

Other Uses: English Language Arts

Grains and Seeds in the Canadian Agriculture (Activity Kit). CN Grain Communications (AGI), 1990. (Free)

The *Grains and Seeds in the Canadian Agriculture* kit is a sturdy, oversize package consisting of a display board of 40 seed samples such as Durum Wheat, Sweet Clover, Field Peas and Buckwheat; a 33 page teacher's guide; built-in instruction chart; and booklet entitled *Canadian Agriculture from Sea to Sea*. The aim of the package is to help students and teachers recognize Canada's principal grain, oilseed and specialty crop seeds, to learn their uses and where they are produced. The 20-page booklet provides an overview of farming across every province. It features coloured maps, and graphs of farm income sources. Written by Larry McCullough, a teacher in Fort Qu'Appelle, Saskatchewan, the activities in the teacher's guide integrate language arts, science, mathematics, and social studies. Teachers may duplicate the material for their students. The kits were distributed to all Saskatchewan elementary schools in the fall of 1990. Each school also received a class set of 30 student booklets.

Suggested Use: Grades Kindergarten to 9

Other Uses: Middle Years Math

The Great Diamond: Long Division (16 mm). (Math That Counts). Encyclopaedia Britannica Education (MHP), 1975. 10 min. Order No. MP 7174

Animation tells a story which uses the repeated subtraction methods of teaching long division. The repeated subtraction method provides a basis for understanding the process of division.


Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Great Teaching in the One Computer Classroom. 3rd ed. (Print-Non-Fiction). David A. Dockterman. Tom Snyder Productions (TSP), 1991. 144 p. No Order No. (\$19.95)

This resource presents good ideas for effective use of even a single computer to support teaching in a variety of curricular areas. There are practical, interesting and easily read articles on four main topics: the computer as a teacher tool, the computer as a presentation tool, the computer as a discussion generator, and the computer as a vehicle for cooperative learning. The personal experiences of the author and the light, easy reading style of the material make this resource attractive to all teachers and may make the use of computers less threatening to the novice. There is a bias towards "Apple" materials and specifically "Tom Snyder" products; however, the suggestions are valid. This third edition also includes a chapter that addresses contemporary multimedia and interactive video.

Suggested Use: Teacher Reference

 **The Grouchy Ladybug** (Print-Fiction). Eric Carle. Harper & Row (HCP), 1977. unp. ISBN 0-06-443116-9 (\$6.95 pbk.)

A grouchy ladybug challenges other creatures to fight at various times throughout the day. Chronicled are clock faces on the hour from 5:00 a.m. to 5:00 p.m., then 5:15, 5:30, 5:45 and 6:00 p.m. The book presents an accurate treatment of ladybug/aphid relationships. There are definite possibilities for correlation with language arts and science themes.

Suggested Use: Grades Kindergarten to 2


Other Uses: English Language Arts|Science

Guess, Check and Revise (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02586

In their new apartment, two children tackle some chores their dad leaves them: fitting a chair through a small doorway and attaching an antenna and cables to the TV and VCR. They solve these problems by guessing how to do each task, noting what does and does not work, and then revising their guesses based on the information they have gleaned from their attempts.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

 **GUESS - Guide to Using Estimation Skills and Strategies** (Activity Cards). Barbara J. Reys and Robert E. Reys. Dale Seymour Publications (ADD), 1983. Order No. 68355 (\$52.50 Box I) Order No. 58356 (\$52.50 Box II)

GUESS Box I and *GUESS Box II* are sets of 200 cards each which present techniques of estimation. Each set of cards uses real-world applications to give students practice with estimation and mental computation. *GUESS Box I* introduces three basic strategies: front-end estimation, rounding and adjusting. *GUESS Box II* introduces more sophisticated strategies: using compatible numbers, averaging, and further refinements of adjusting. Each box is divided into three sections, and each section has 35 starter cards which give explicit hints, and questions for class and group discussion. The starter cards offer a way to introduce, demonstrate and discuss specific estimation strategies. The remaining 95 cards per set contain activity cards for individual use. The activities offer diverse situations from everyday life and present numerous opportunities to develop critical thinking skills and reasoning abilities.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

 **A Guide to Teaching Mathematics in the Primary Grades** (Print-Teacher-Reference). Arthur J. Baroody. Allyn and Bacon (PRN), 1989. 414 p. ISBN 0-205-11792-9 (\$49.95)

Fourteen chapters provide instructional strategies for primary teachers. A sample of chapter titles includes Oral Counting, Numbering, Numerical Relationships, and Reading and Writing Symbols. The thick book focuses on formal and informal mathematical knowledge for

pre-Kindergarten to Grade 3 age children. The book is essentially a reference manual for practitioners. A workbook, available but not evaluated, *Elementary Mathematics Activities: Teacher's Guidebook* supplements this book. The Appendices detail a suggested sequence of skills and concepts for each grade level. References. Index of games and activities. Index of skills and concepts.

Suggested Use: Teacher Reference

The Guy Who Was Five Minutes Late (Print-Fiction). Bill Grossman. Harper & Row (HCP), 1990. unp. ISBN 0-06-022268-9 (\$18.95 hdc.)

A lighthearted look at the topic of time, this is the story of a baby born five minutes late, and doomed to be five minutes late forever more. Told in rhyme, this modern fairy tale with surprise ending will be a discussion starter when classes study time. The humorous treatment of this timely topic is certain to appeal, and there are applications for whole language incorporation as well.

Suggested Use: Grades Kindergarten to 2

Hands On Attribute Blocks (Print-Teacher-Reference). (Hands On Manipulative Activities for Primary Children). Creative Publications (BB), 1986. 120 p. BB 6363 (\$28.40)

This activity-oriented resource in three-ring binder format contains three books in one and covers the span from Kindergarten to Grade 3 with 120 reproducible pages. The binder contains a sequential group of activities designed for hands-on problem-solving using attribute blocks. The resource focuses on independent problem solving, sorting, classifying and recording solutions. Creativity is encouraged. The problems range from basic to challenging (extra-challenging problems are also included). The resource can be used with large and small groups or independently at learning centres.

Suggested Use: Grades Kindergarten to 3

Hands On Base Ten Blocks (Print-Teacher-Reference). (Hands On Manipulative Activities for Primary Children). Creative Publications (BB), 1986. 120 p. BB 6364 (\$28.40)

This activity-oriented resource in three-ring binder format contains three books in one and covers the span from Kindergarten to Grade 3 with 120 reproducible pages. It contains a series of sequentially designed activities which focus on developing a concrete image of the base ten system through manipulation, identification and problem solving. The activities include matching, counting by ones, tens, hundreds, trading, using clues, following directions, tracing and writing numbers. The ideas from this resource can be used with large and small groups or in learning centres.

Suggested Use: Grades Kindergarten to 3

Hands On Geoboards (Print-Teacher-Reference). (Hands On Manipulative Activities for Primary Children). Creative Publications (BB), 1986. 120 p. BB 6365 (\$28.40)

This activity-oriented resource in three-ring binder format contains three books in one and covers the span from Kindergarten to Grade 3 with 120 reproducible pages. Each sequentially developed activity provides students with the opportunity to follow directions, think and reason in a logical manner, and record their results. Problem solving is encouraged as students manipulate various geometric shapes in an informal way.

Suggested Use: Grades Kindergarten to 3

Hands On Pattern Blocks (Print-Teacher-Reference). (Hands On Manipulative Activities for Primary Children). Creative Publications (BB), 1986. 120 p. BB 6366 (\$28.40)

This activity-oriented resource in three-ring binder format contains three books in one and covers the span from Kindergarten to Grade 3 with 120 reproducible pages. The resource presents numerous ideas for sorting, classifying, recognizing patterns, matching and copying various geometric patterns and shapes.

Suggested Use: Grades Kindergarten to 3

Hands On Tangrams (Print-Teacher-Reference). (Hands On Manipulative Activities for Primary Children). Creative Publications (BB), 1986. 120 p. BB 6367 (\$28.40)

This activity-oriented resource in three-ring binder format contains three books in one and covers the span from Kindergarten to Grade 3 with 120 reproducible pages. This resource presents the opportunity to manipulate tangram pieces on numerous exercises. Sorting, classifying, matching and copying are encouraged. Students learn to follow directions and read symbols. The pages become progressively more challenging.

Suggested Use: Grades Kindergarten to 3

Hands On Unifix Cubes (Print-Teacher-Reference). (Hands On Manipulative Activities for Primary Children). Creative Publications (BB), 1986. 120 p. BB 6368 (\$28.40)

This activity-oriented resource in three-ring binder format contains three books in one and covers the span from Kindergarten to Grade 3 with 120 reproducible pages. The suggestions provided in this binder introduce and explore applications of unifix cubes. Matching, sorting, classifying, counting and comparing are but a few of the activities suggested.

Suggested Use: Grades Kindergarten to 3

Handtalk Birthday: A Number and Story Book in Sign Language (Print-Non-Fiction). Remy Charlip, Mary Beth and George Ancona. Four Winds Press (MMC), 1987. unp. ISBN 0-02-718080-8 (\$20.95 hdc.)

Vivid photographs are used to illustrate this unique resource that features sign language and finger spelling. All of the vocabulary is signed in the photographs and shown in print. Objects presented at a surprise birthday party are counted. Numerals from 1 to 22 are shown and then the numbers by tens to 99, 100, 200 and 1000 are shown in sign language.

Suggested Use: Grades Kindergarten to 5

Hilary Knight's The Twelve Days of Christmas (Print-Fiction). Hilary Knight. Aladdin Books - Macmillan Publishing Company (MMC), 1981. unp. ISBN 0-689-71150-6 (\$6.95 pbk.)

This small paperback brings to life the familiar holiday song "The Twelve Days of Christmas". Three parallel stories are illustrated beautifully and wordlessly. In the first, Benjamin Bear presents the traditional gifts to his sweetheart Belinda Bear. In the second story Belinda Bear continues the activities of daily life, utilizing each gift as she prepares for Christmas. It is easy to miss the third story, but a careful observer will find Reginald Raccoon in every scene, desperately attempting to open a steel can. The opportunities for ordering, sequencing, locating patterns, counting, and observing cause and effect are numerous. The last page folds out to reveal Belinda's holiday surprise for Benjamin.

Suggested Use: Grades Kindergarten to 3

Other Uses: English Language Arts

Hop To It! Fun With Number Lines (Software). Sunburst (SUN), 1990. ISBN 178902 (\$87.00 5 1/4" Disk Apple II) ISBN 357202 (\$87.00 3 1/2" Disk Apple II)

Hop To It! is a software program in which students write number sentences to move computer characters. Through basic problem solving they explore the number line using addition and subtraction facts and become familiar with direction and distance on a number line. Three problem levels provide challenging activities for several grades. This award-winning program integrates early math and language arts skills and includes one 5 1/4" disk, one back-up disk and manual in three-ring binder format.

Suggested Use: Grades Kindergarten to 5

Houghton Mifflin Mathematics (Print-Non-Fiction). Irv Burbank, et al. Houghton Mifflin (HMF), 1988.

Houghton Mifflin is a mathematics program with a philosophy of concept development through activities. There is an emphasis on problem solving. Technological integration has been achieved through the inclusion of calculator and courseware components. Both formal and informal methods of assessment are suggested.

The coilbound Teacher's Resource Book contains comprehensive lesson plans and suggestions to aid in planning and manageability. Blackline masters support every teaching unit. Letters to parents foster home/school interaction. Mathematics Activities Courseware correlates with each chapter and is available for Apple, Commodore 64, IBM PC and PCjr. The Teacher's Practice-Enrichment-Testing Books (P.E.T.) contain blackline master pre- and post-tests and lessons for practice and enrichment. Calculator Problem Solving Books are activity books with motivational problem solving situations. Grades K to 2 feature workbooks while Grades 3 to 6 have textbooks. Ordering information and prices follow:

BB 5789	Houghton Mifflin Mathematics 1 (Grade 1) (Consumable)	\$11.40
BB 5790	Teacher's Resource Book, Houghton Mifflin Mathematics 1	
BB 5791	Problem Solving Activities, Houghton Mifflin Mathematics 1 (Grade 1) (package of 10) (1982 Ed.)	\$31.40
BB 5792	Teacher's P.E.T. Book, Houghton Mifflin Mathematics 1 (Grade 1)	\$41.95
BB 5793	Houghton Mifflin Mathematics 2 (Grade 2) (Consumable)	\$11.50
BB 5794	Teacher's Resource Book, Houghton Mifflin Mathematics 2 (Grade 2)	\$41.95
BB 5796	Problem Solving Activities, Houghton Mifflin Mathematics 2 (Grade 2) (package of 10) (1982 Ed.)	\$31.40
BB 5856	Teacher's P.E.T. Book, Houghton Mifflin Mathematics 2 (Grade 2)	\$41.95
BB 5857	Houghton Mifflin Mathematics 3 (Grade 3)	\$19.85
BB 5858	Teacher's Resource Book, Houghton Mifflin Mathematics 3 (Grade 3)	\$41.95
BB 5859	Problem Solving Activities, Houghton Mifflin Mathematics 3 (Grade 3) (package of 10) (includes Teacher's Resource Book, Problem Solving Activities) (1982 Ed.)	\$41.90
BB 5860	Teacher's P.E.T. Book, Houghton Mifflin Mathematics 3 (Grade 3)	\$41.95
BB 5861	Houghton Mifflin Mathematics 4 (Grade 4)	\$19.85
BB 5862	Teacher's Resource Book, Houghton Mifflin Mathematics 4 (Grade 4)	\$41.95
BB 5863	Problem Solving Activities, Houghton Mifflin Mathematics 4 (Grade 4) (package of 20) (includes Teacher's Resource Book, Problem Solving Activities) (1982 ed.)	\$41.90
BB 5864	Teacher's P.E.T. Book, Houghton Mifflin Mathematics 5 (Grade 5)	\$41.95
BB 5865	Houghton Mifflin Mathematics 5 (Grade 5)	\$19.85
BB 5866	Teacher's Resource Book, Houghton Mifflin Mathematics 5 (Grade 5)	\$41.95
BB 5867	Problem Solving Activities, Houghton Mifflin Mathematics 5 (Grade 5) (Package of 10) (includes Teacher's Resource Book, Problem Solving Activities) (1982 Ed.)	\$41.90
BB 5868	Teacher's P.E.T. Book, Houghton Mifflin Mathematics 5 (Grade 5)	\$41.95

Suggested Use: Grades Kindergarten to 5

How Big Is the Moon? Whole Maths in Action (Print-Non-Fiction). Dave Baker, et al. Heinemann Educational Books, Inc. (IRW), 1990. 110 p. ISBN 0-435-08312-0 (\$19.00 pbk.)

Australian teachers impressed with their success with whole language programs transferred those principles to their math programs. This resource provides the basis for their new approach to teaching mathematics - an approach that features discovery and exploration of real-life problems. An integrated math program is advocated by the exploration of facts, skills and concepts in relevant and meaningful contexts. A positive learning environment is emphasized and countless practical examples are provided. A lengthy section details current evaluation strategies. This reference will help teachers begin to change their traditional ways of teaching math to more innovative methods.

Suggested Use: Teacher Reference

How Many Snails? A Counting Book (Print-Fiction). Paul Giganti, Jr. Greenwillow Books (MCM), 1988. unp. ISBN 0-688-06370-5 (\$19.95 hdc.)

A child walking sees numerous opportunities to count. Through counting, grouping and differentiating, children are invited to apply critical thinking skills to solve problems presented by the text. Each double page spread goes from the general to the specific - how many snails? How many snails with stripes? How many snails with striped shells with their heads stuck out? This resource could be used over and over, and provides a model for language arts activities.

Suggested Use: Grades Kindergarten to 2

Other Uses: English Language Arts

How to Encourage Girls in Math and Science: Strategies for Parents and Educators (Print-Teacher-Reference). Joan Skolnick, et al. Dale Seymour Publications (ADD), 1982. 192 p. Order No. 68288 (\$13.65 pbk.)

This guidebook for parents and educators acquaints the reader with gender stereotyping and discrimination. It suggests ways parents, teachers and students can develop math and science skills through confidence building, materials manipulation, social arrangements and gender-role awareness. It provides activities for gender-fair learning in spatial visualization, working with numbers, logical reasoning and scientific investigation. The activities are for boys and girls. Black and white photos, sketches, charts and graphs are included. Table of Contents. Bibliography. Index.

Suggested Use: Teacher Reference

Other Uses: Elementary Science

How to Go Metric (Videotape). (The Metric System). Saskmedia (MHP), 1977. 11 min. Dup. Order No. V00824

This video discusses planning for metric instruction, identification of metric application in

curriculum areas, creating the metric environment and evaluation of change.

Suggested Use: Teacher Reference

I Get It! Projects to Build Thinking Skills (Print-Teacher-Reference). Barbara Stretton, et al. Wings for Learning (SUN), 1989. 157 p. Order No. 3042 (\$49.00)

This is a non-sequential, interdisciplinary program for students in Grades 4 to 7. The object of the program is to incorporate thinking skills into various curriculum areas. It advocates Bloom's divergent thinking approaches of generating many solutions rather than a single correct solution. The thinking skills of problem solving stressed in this resource are: synthesis, fluency, flexibility and elaboration. The three-ring binder is divided into these four topics and separate chapters in each unit are devoted to mathematics, language arts, science and social studies. Many reproducible blackline masters form the student activity pages. The skills can be taught as a single unit or throughout an entire school year.

Suggested Use: Grades 4 to 7

Other Uses: Middle Years Math

The I Hate Mathematics! Book (Print-Non-Fiction). Marilyn Burns. Little, Brown and Company (LIT), 1975. 127 p. ISBN 0-316-11740-4 (\$19.95 hdc.)

This long-time favourite resource depicts hundreds of high-interest, math related activities, games, tricks, puzzles and gags. Amusing sketches interspersed throughout the text keep students turning the pages to discover the next mathematical article while all the while introducing or developing a wide diversity of mathematical concepts such as ratio, probability, estimation, geometry and problem solving strategies.

American content does not detract from this resource's ability to provide a rich source of mathematical amusement, humour and creative problems, all within 127 pages. Indexed.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

The Ideal Problem Solver - A Guide for Improving Thinking, Learning, and Creativity (Print-Non-Fiction). John D. Bransford and Barry S. Stein. W. H. Freeman and Company (WHF), 1984. 150 p. ISBN 0-7167-1669-0 (\$12.95 U.S. pbk.)

This teacher reference contains ideas and suggestions for improving creative problem solving abilities and for practicing creative thinking. Strategies for improving memory, generating ideas, and communicating effectively are described. The authors challenge readers to solve problems by overcoming blocks to creativity, and by viewing problems from a variety of perspectives. Numerous brain-teasers, everyday examples, and amusing anecdotes are included.

Suggested Use: Teacher Reference

Other Uses: Entrepreneurship

Identifying the Problem (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 13 min. Dup. Order No. V02471

This program models restating the problem, changing the context, discarding unnecessary information, and indicating what is given and what is needed.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

If I Were a Cat I Would Sit in a Tree (Print-Fiction). Ebbitt Cutler and Rist Arnold. Tundra (UTP), 1985. unp. ISBN 0-88776-177-1 (\$7.95 pbk.)

If I Were a Cat I Would Sit in a Tree is a circular counting tale told in clever predictable rhyming patterns. Incorporating pictures and situations involving the numbers from one to twelve and corresponding to the months of the year, this counting book tells of the daydreams and wishes of the writer to be one cat, two cats or even more. Beautiful, intricate designs opposite the page of text are framed in stylized black and white borders. Six lines of simple yet effective verse beg for the sequential number which is found on the next page. A welcome addition to your counting book collection.

Suggested Use: Grades 2 to 3

Other Uses: English Language Arts

In Common Arithmetic (Software). Sunburst (SUN), 1990. Order No. 347202 (\$87.00)

In Common Arithmetic consists of four games, each a variation of a traditional game. Each game challenges players to identify attributes, infer categories, and analyze relationships using arithmetic problems. The games are Bingo, Marathon, Rummy and Tic-Tac-Toe. Transparency masters and worksheets form part of the 83 page teacher's guide in three-ring binder format. The program is available for IBM PC, IBM PS/2 and Tandy 1000.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Individualized Math Booklets (Print-Teacher-Reference). Michael R. Fulton. STF Teaching Materials Centre (STF), unp. No Order No. (\$1.60)

This is a presentation of the contents of 39 individualized math booklets originally designed for use with Grade 3 students. Some of the metric exercises may be more suited for use with older students. Concepts touched upon include: cardinal and ordinal numbers, numeration and notation, rounding off, counting, money, fractions, problem solving, geometry and measurement.

Suggested Use: Grades 1 to 5

It Figures (Videotape Series). Agency for Instructional Technology (MHP), 1986. 15 min. each.

Titles in this series include:

Changing Scale on a Graph; Comparing Decimals; Deciding When to Use Multiplication; Deciding When to Use Subtraction; Estimating When Dividing; Finding Area by Covering; Finding Equivalent Fractions; Looking at Objects from Different Positions; Making Sense of a Large Number; Measurement: Deciding How Close Is Close Enough; Predicting Your Change; Problem Solving: Acting It Out; Problem Solving: Drawing a Picture; Problem Solving: Keep on Trying; Problem Solving: Making a Table; Problem Solving: Many Ways to Go; Problem Solving: Recognizing Necessary Information; Problem Solving: Using a Guide; Relating Fractions and Decimals; Understanding Place Value; Understanding Remainders; Using Bar Graphs; Using Division; Using Estimation; Using Fractions; Using Mental Computation; Using Multiplication and Addition; Using Probability.

Each title is annotated separately in the bibliography.

Suggested Use: Grades 3 to 5

It's About Time (16 mm). National Geographic Society (MHP), 1982. 20 min.
Order No. MP 8729

Pamela Prentice presumed she knew all about time until she met the "man from time." In the film, young students join Pamela as she is introduced to many aspects of this fascinating subject. Clocks are important because sometimes time can fool you. A minute, Pam discovers, can appear to pass slowly or quickly. Students will discover that *It's About Time!* is not only about time, but also about our perception of it.

Suggested Use: Grades 3 to 5

Journeys in Math (Print-Non-Fiction). Janice Sarkissian. Ginn and Company (GIN), 1986-87.

Journeys in Math is an activity-based program that presents learning experiences through a child-centered approach. The program is a gradual and logical progression from hands-on manipulative to abstract, symbolic representation. Strands addressed are Problem Solving, Geometry, Computer and Calculator Applications, and Fractions and Decimals. Practice, maintenance and review sections are included as blackline masters.

The program consists of a Teacher's Resource Manual with spiral binding for each grade. The manuals suggest techniques for using manipulatives with an emphasis on process rather than product. Teaching Aids are blackline master packages provided for each grade level. Also included are optional activity books for Grades 1 and 2, and textbooks for Grades 3 and up.

BB 651	Working Together, Journeys in Math 1 (Grade 1) (Consumable)	\$12.55
BB 652	Teacher's Edition, Working Together, Journeys in Math 1 (Grade 1)	\$16.75
BB 653	Teacher's Resource Manual, Journeys in Math 1 (Grade 1)	\$62.85
BB 654	Teaching Aids, Journeys in Math 1 (Grade 1)	\$27.80
BB 655	Working Together, Journeys in Math 2 (Grade 2) (Consumable)	\$12.55
BB 656	Teacher's Edition, Working Together, Journeys in Math 2 (Grade 2)	\$16.75
BB 657	Teacher's Resource Manual, Journeys in Math 2 (Grade 2)	\$62.85
BB 658	Teaching Aids, Journeys in Math 2 (Grade 2)	\$29.90
BB 659	Journeys in Math 3 (Grade 3)	\$20.45
BB 660	Teacher's Resource Manual, Journeys in Math 3 (Grade 3)	\$52.40
BB 661	Teaching Aids, Journeys in Math 3 (Grade 3)	\$29.90
BB 662	Journeys in Math 4 (Grade 4)	\$20.45
BB 663	Teacher's Resource Manual, Journeys in Math 4 (Grade 4)	\$52.40
BB 664	Teaching Aids, Journeys in Math 4 (Grade 4)	\$29.90
BB 665	Journeys in Math 5 (Grade 5)	\$20.45
BB 666	Teacher's Resource Manual, Journeys in Math 5 (Grade 5)	\$52.40
BB 667	Teaching Aids, Journeys in Math 5	\$29.90

Suggested Use: Grades Kindergarten to 5

Just Around the Block (Software). (Explore-a-story). Learningways: Collamore Educational Publishing (HTH), 1987. ISBN 0-669-14536-X (\$125.00)

The Explore-A-Story series integrates reading and writing. As well, this particular program incorporates mathematical concepts. Designed for Apple IIe or IIGS, the program includes five student booklets, teacher's guide, program disk, student disk and two backup disks. The story in the program includes references to various times throughout the day and traditional clock faces are shown. User should be aware that the program is American in origin and content.

Suggested Use: Grades 1 to 3

Keep Your Balance (Software). Sunburst Communications, Inc. (SUN), 1989. Order No. 174902 (\$87.00)

Keep Your Balance challenges students to solve puzzles by adding, subtracting, or replacing objects on a pan balance. By using concrete objects, students are better able to make the transition to abstract problem solving. Each puzzle provides two or three equations and students solve the equation by adding, subtracting, and replacing objects in the pans of the balance.

Three levels of difficulty are provided. The complete package is included in a three-ring binder; the diskettes are 5 1/4" and work with Apple Mouse/Touch Window.

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

The King's Chessboard (Print-Fiction). David Birch. Dial Books for Young Readers (MCC), 1988. unp. ISBN 0-8037-0367-8 (\$15.95)

Set in ancient India and with the same theme as *A Grain of Rice*, this folktale tells the story of a wise man who reluctantly agrees to accept a reward for services rendered. He requests a single grain of rice to be placed on the king's chessboard and to be doubled each day until 32 days have passed. Very soon the King's mathematicians are summoned to recalculate the figures when the king is shocked to discover how much grain he owes the wise man.

Although the story uses ounces, pounds and tons, this does not detract from the lesson to be learned: pride can make a fool of anyone, even a king.

Suggested Use: Grades 3 to 5

Other Uses: English Language Arts

The King's Rule: Mathematics and Discovery (Software). Wings for Learning - Sunburst (WINGS), 1990. Order No. 102150 (\$87.00)

Six levels of difficulty in a game format and in an interactive environment provide exercises and practice in deductive reasoning. The package consists of two disks and a 21-page teacher's manual in three-ring binder format. Teacher options include sound control and the ability to provide limited access to specific difficulty levels. Available for Apple, Commodore 64, IBM PC/PCjr, IBM PS/2 and Tandy 1000. The particular software examined was for Apple II Plus and IIc (48K) with disk drive, colour monitor recommended.

Suggested Use: Grades 4 to 12

Other Uses: Middle Years Math|Secondary Math

Know Your Numbers (Print-Fiction). Tim O'Halloran. Hayes Publishing (EBP), 1983. 38 p. ISBN 0-88625-045-5 (\$15.55 hdc)

The numerals from 1 to 20 are introduced, counted, ordered, matched, categorized, rhymed and sequenced in this colourful book. Large, glossy pages contain amusing illustrations with numerals printed in bold numbers and rhyming number word sentences. The resource attractively presents numerous opportunities to play with, use, and enjoy numbers everyday. It includes brief references to adding, subtracting, telling time, equation writing, comparisons and shapes. An amusing read-aloud discussion book for parents or teachers and children.

Suggested Use: Grades Kindergarten to 2

Learning Basic Skills: Music by Hap Palmer (Videotape). Educational Activities, Inc. (PIP), 1986. 25 min. Order No. 0606VHS 445 (\$31.95)

Lively songs and interesting episodes are provided in three 8-minute segments. Colours, alphabet, and numbers are the basic skills taught or reinforced with humour and fun in this visual presentation of some of Palmer's old songs. A pamphlet accompanies the videotape.

Suggested Use: Grades Kindergarten to 1

The Learning Environment: A Practical Approach to the Education of the Three-, Four-, and Five-Year Old. 2nd ed. (Print-Teacher-Reference). Chris Nash. Collier Macmillan Canada, Inc. (MMC), 1989. 206 p. ISBN 0-02-953550-6 (\$18.00 pbk.)

This resource discusses an early childhood learning environment using an integrated approach. Four dimensions of learning are explored: time, space, things and people. It emphasizes helping children learn through appropriate conditions and well-planned content. An entire chapter details number activities, teaching number concepts, and setting up number learning centers. Highly recommended.

Suggested Use: Teacher Reference

Learning from Children: New Beginnings for Teaching Numerical Thinking (Print-Teacher-Reference). Ed Labinowicz. Addison-Wesley (ADD), 1985. 454 p. Order No. 20321 (\$40.55 pbk.)

For purposes of this resource the author has interviewed and videotaped hundreds of Grade 1, 2 and 3 children and provided critical research on children's numerical thinking. Using stop-action graphics, the interviewed episodes are presented with comments relating to Piaget's theory of intellectual development. The children are shown to be active learners interpreting selectively and with meaning.

This resource combines research theory with practical applications. Numerous concrete examples provide the teacher with models of the sequential teaching of numeracy skills. Discussions include counting methods, equality sentences, number story problems, counting, place values, and addition and subtraction with regrouping of large numbers.

Suggested Use: Teacher Reference

Learning Mathematics - A Program for Classroom Teachers (Print-Teacher-Reference). Ross McKeown. Heinemann (IRW), 1990. 139 p. ISBN 0-435-08304-X (\$15.80 pbk.)

This Australian teacher resource aims to provide elementary teachers with an individualized activity-based mathematics program. The ideas cover a range of approximately six years and could be used with entire classes, small groups or individual students. The author believes that every child learns at his or her own rate and that learning should be continuous

and ungraded. Included are sample schedules, advice on planning, games, puzzles, and evaluation techniques and suggestions. This resource stresses seven strands: number facts, counting and patterns, basic operations, place value, processes, properties, and fractions. The philosophy of the program is very similar to what is recommended by the National Council of Teachers of Mathematics.

Suggested Use: Teacher Reference

Lemonade Parade (Print-Fiction). Ben Brooks. Kids Can Press (HMF), 1991. unp. ISBN 1-55074-0091 (\$11.95)

The opportunities for mental math and estimation are numerous in this amusing story. A father dresses up in several outlandish outfits to put in an appearance at his children's lemonade stand. Using clothing clues, one of the children guesses the identity of the customers. The creative venture proves highly successful for all concerned.

Suggested Use: Grades Kindergarten to 3

Other Uses: English Language Arts

Let's Explore: A Mathematics Activity Book (Print-Teacher-Reference). Betty Coombs and Lalie Harcourt. Addison-Wesley (ADD), 1988. 94 p. Order No. 19225 (\$8.00)

This activity book supplements the activity-based mathematics program *Explorations 2*. The activities in the book are referenced under the heading "Supplementary Material" in *Explorations 2*. This very colourful activity book, in workbook format, has pages designed to be used by individuals, pairs or small groups in learning centres. The game boards and work mats can be laminated and used over and over. The activities allow creativity with pre-made props and aids.

Suggested Use: Grade 2

Lights, Camera, Fractions (Videotape). Walt Disney Productions - Magic Lantern (MAG), 1984. 15 min. (\$99.00 VHS)

Claymation filming technique shows fractions, regions, sets, numerator, denominator, equivalent fractions and number lines in an amusing song-filled video.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

The Littlest Dinosaurs (Print-Fiction). Bernard Most. Harcourt Brace Jovanovich (CMG), 1989. unp. ISBN 0-15-248125-7 (\$13.95)

Fact and fiction are melded into this typically Bernard Most storybook that tells of the often neglected dinosaurs, those less than 14 feet long. Regrettably, no metric equivalents are provided, however the storyline is not diminished by this American edition. Phonetic

respellings provide pronunciation guides and each dinosaur is shown near an everyday object to show its relative size. The dinosaurs become progressively smaller until the reader comes to one that was just eight inches long, *Mussaurus*, the size of a teddy bear. As in his other books, the author presents opportunities for children to make realistic observations while fantasizing about having a dinosaur for a pet.

Suggested Use: Grades Kindergarten to 3

Living and Learning Mathematics: Stories and Strategies for Supporting Mathematics Literacy (Print-Teacher-Reference). David J. Whitin, et al. Heineman (IRW), 1990. 176 p. ISBN 0-435-08303-1 (\$22.80 pbk.)

This child-centred experimental approach uses children's literature and everyday experiences to explore mathematics. Mathematical literacy is developed by using and understanding numbers, not by rote memorization or intensive drilling. Familiar stories have been selected such as *Danny and the Dinosaur*, *Hop on Pop*, *Five Little Monkeys*, and *Anno's Counting Book*. Whole language techniques are incorporated throughout as students measure plants, classify dinosaurs, and count new or missing teeth.

Suggested Use: Teacher Reference

Logix (Activity Kit). Michel Lyons and Robert Lyons. Mondia (MND), 1991. ISBN 2-89114-466-X (\$35.00)

The Logix game is composed of a grid of nine blank boxes, nine plastic geometric figures (circles, triangles and squares coloured blue, yellow and red), 62 numbered problem cards (the logigrids) ranked according to their level of difficulty, and a work sheet, all in a heavy plastic box with built-in handle. The numbered problem cards or logigrids are logic problems in which nine geometric figures must be placed in the grid according to each of the clues provided. The program is basically wordless, and the manual is reversible with French instructions also.

Suggested Use: Grades 2 to 5

Looking at Objects from Different Positions (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 13 min. Dup. Order No. V03680

Kaylin and Chenetta help the police outsmart a crook who realized that the appearance of a three-dimensional object may change as an observer changes position. Tom Thumb stumps the king on three riddles based on changing points of view.

Suggested Use: Grades 3 to 5

Magic Rectangle: Short Multiplication (16 mm). (Math that Counts). Encyclopaedia Britannica Education (MHP), 1975. 11 min. Order No. MP 7163

This film is an animated three little pigs story which uses rectangular arrays of square metres as a visual model for multiplication. It helps to explain the commutative property of multiplication.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Make It Simpler: A Practical Guide to Problem Solving in Mathematics

(Print-Teacher-Reference). Carol Meyer and Tom Sallee. Addison-Wesley (ADD), 1983. 282 p. Order No. 20036 (\$25.85 pbk.)

This teacher resource, in three-ring perforated-page format, is designed for daily use in the classroom. Introductory chapters give teachers helpful hints for introducing and implementing problem solving strategies. The resource contains over 160 blackline masters of individual problems, including 60 problems designed specifically for group solving. The resource discusses the use of manipulatives, groupings, class management techniques and games that motivate while promoting logical thinking. In particular, it develops five strategies for solving problems: find and solve sub-problem; use a diagram, picture, manipulative or dramatization; use easier numbers, estimation or fewer steps; find and use patterns; work backwards. Imperial measurements only.

Suggested Use: Teacher Reference

Making Sense of a Large Number (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 15 min. Dup. Order No. V03692

Zeke plans to collect a hundred thousand bottle caps - until he learns to picture how many that would be. The Duke of York's baker needs help thinking about ten thousand muffins.

Suggested Use: Grades 3 to 5

Many Moons (Print-Fiction). James Thurber. Harcourt Brace Jovanovich Publishers (CMG), 1990. unp. ISBN 0-15-251872-X (\$13.95 U.S.)

The original version of this story is over 40 years old but the illustrations are very new. Rich in language, this James Thurber story is both funny and clever. This folktale tells of a princess who wants the moon in order to be well again. Wise men are unable to grant her wish but the clever Jester solves the problem in a unique way. Whimsical illustrations enhance the amusing story which includes a touch of mathematical wizardry and provides opportunity for estimating and calculating. Imperial measures.

Suggested Use: Grades 2 to 4

Other Uses: English Language Arts

Math Activity Cards (Print-Non-Fiction). Michael R. Fulton. STF Teaching Materials Centre (STF), 1981. 41 p. No Order No. (\$2.25)

Forty pages provide numerous suggestions for teachers wishing to prepare activity cards for their math classes. Suggestions are aimed at the Grade 3 level but many ideas are readily adaptable for other grade levels.

Suggested Use: Grades 1 to 5

Math-A-Magic: Number Tricks for Magicians (Print-Non-Fiction). Laurence B. White, Jr. and Ray Broekel. Albert Whitman & Company (IRW), 1990. 48 p. ISBN 0-8075-4994-0 (\$12.40)

Twenty magic tricks that use mathematical concepts are presented in this book. Plenty of text and simple, comical illustrations provide the necessary details for students to learn simple mathematical puzzles. In many cases an accomplice is necessary, but several tricks can be performed by a single person. Perfection always means practice and these tricks will motivate students to practice while having fun. Explanations are provided which explain the "magic" behind each trick.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Math Concepts: Level P (Software). (IBM Math Concepts Series). (IBM), 1987. Order No. 6024721 (3 1/2") (\$168.70)

This package consists of one 3 1/2" disk and one teacher's guide. It may be used with any IBM or compatible with colour card. Colour, graphics and sound are used. The object of the program is to identify similarities and differences, to make comparisons, to order numbers on a number line, and to recognize sums and differences to 10 and 20. Most of the activities are of a drill and practice nature, although there are some open-ended questions. The feedback consists of appropriate praise and helpful hints.

Suggested Use: Grades Kindergarten to 2

Math Concepts: Level I (Software). (IBM Math Concepts Series). (IBM), 1987. Order No. 6024722 (3 1/2") Order No. 6024355 (5 1/4") (\$194.60 each)

Math Concepts: Level I is the second of five such programs, this one designed for Grade 1 and 2 students. Available in 3 1/2" or 5 1/4" diskettes for IBM computers and compatibles, this program seeks to teach basic mathematical skills with whole numbers and fractions. The emphasis is on whole numbers and fractions with addition, subtraction and multiplication. Geometric shapes are introduced. Easy-to-follow instructions, colourful graphics and sample practice questions are features of this program which has approximately 80 activities in six units. Activities include counting, follow the dot, estimation, number order, writing number sentences, basic shapes and a variety of problem solving activities. A section of the teacher

manual includes numerous teaching ideas. Evaluation techniques and progress charts are provided. Activity hints in the manual are useful for both students and teacher. A section of the program called Student Manager allows the teacher to record student progress, assign lessons, print reports and control options such as sound.

Suggested Use: Grades 1 to 2

Math Concepts: Level II (Software). (IBM Math Concepts Series). (IBM), 1987.
Order No. 6024723 (3 1/2") Order No. 6024357 (5 1/4") (\$194.60 each)

Level II of this series is designed for Grade 3 and 4 students and it follows exactly the format of Level P, I, and III. It is an interactive tutorial drill package with over 100 activities in six units and 30 lessons. Each unit has a mix of number concepts, computation, geometry and problem solving. Subsequent to Level I, the activities have the same names but are more challenging. Some programs use animated graphics to illustrate arithmetic operations. A management system records the current activity, total number of activities completed, and the total time spent on all activities for up to 50 students. The system allows the teacher to maintain student records, assign lessons, print reports, preview lessons and control such options as sound. Available for IBM computers and compatibles on 5 1/4" and 3 1/2" diskettes.

Suggested Use: Grades 3 to 4

Math Drill Games (Print-Teacher-Reference). Dr. James E. Beamer. STF Teaching Materials Centre (STF), 27 p. No Order No. (\$1.20)

Math games that provide creativity, motivation and reinforcement of mathematical topics are presented in this STF publication. The games cover all grade levels from Grade 1 to 9 and include easily found components such as dice, playing cards and game boards made of tag board.

Suggested use: Teacher Reference

Other Uses: Middle Years Math

Math for Every Season: Primary Level (Filmstrip Kit). (Look, Listen, Explore). National Geographic Society (NGS), 1985. Order No. 30067 (\$86.00)

Two filmstrips are included in this participatory filmstrip kit: Seed to Pumpkin 1, 2, 3 and Egg to Bird 1, 2, 3. The filmstrip's narration cassette allows ample time for response when children are invited to respond by holding up the correct number of fingers. The teacher's guide includes script, background information and follow-up classroom activities. Students count, classify, and locate number combinations as they follow plants and animals through the seasons.

Suggested Use: Grades Kindergarten to 2

Math for Smarty Pants (Print-Non-Fiction). Marilyn Burns. (A Brown Paper School Book). Little, Brown and Company (LIT), 1982. 128 p. ISBN 0-316-11739-0 (\$11.95 pbk.)

Page after page of mathematical tricks, logic puzzles, mysteries, paradoxes and games are designed to convince "math haters" to become "math smarty pants" - people who believe that math can and does make sense. Articles detailed include activities with geometry, statistics, numeration, logical thinking and advanced numbers. The brief articles are liberally interspersed with numerous black and white sketches of the five main characters who guide you through the book. Answers for most puzzles are given upside down and in mirror image. Minimal American references.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Math Gems: Sparkling Activities for Early Childhood Classrooms

(Print-Teacher-Reference). Carole Greens, et al. DLM Teaching Resources (DLM), 1989. 122 p. ISBN 1-55924-699-5 (\$34.50)

This American resource contains 140 basic mathematics activities for primary grades. The activities are designed to foster concept development by means of manipulative materials, dramatization, games, stories, and large and small group activities. Each activity requires readily available or easily constructed materials or has a blackline master supplied in the book. Content areas covered are classification, spatial relations, counting, numeration, operations, applications, measurement and geometry, reasoning, tables and graphs. Be advised that all measurements are imperial and the money pages, while adaptable, are American.

Suggested Use: Grades Kindergarten to 2

Math In Service (Videotape Series). SaskMedia (MHP), 1982. 20 min. each.

Title in the series: Concrete Devices for Division 1 and 2 Math. The entry is annotated separately in the bibliography.

Suggested Use: Teacher Reference

Math Mania: Adventures in Mathematics (Journal).

Math Mania is a 12-page Canadian journal of creative math ideas and practical classroom activities. It is published four times a year in September, November, February and April. Subscription rates are \$8.00 per math teacher or resource center, or \$9.00 per Math Department, or \$7.00 per full-time student. Back issues are also available for \$2.50 each. Teachers are given permission to photocopy the contents for classroom use. Address subscription to Math Mania, P.O. Box 24114, 601 Dundas St. W., Whitby, ON L1N 8X8.

Suggested Use: Grades 4 to 12

Other Uses: Middle Years Math|Secondary Math

Math Masters: Addition & Subtraction (Software). (Math Masters Series). DLM Teaching Resources (DLM), 1988. ISBN 0-89505-576-7 (\$49.95)

Consisting of two 5 1/4" diskettes and a user's guide, *Math Masters: Addition & Subtraction* teaches and reinforces addition and subtraction math facts for all numbers from 0 to 25 with a wide array of options for problem selection. The program is designed for the Apple computer and uses either keyboard or mouse control. Two separate programs are included: Dr. Mathmo solves problems and changes top hats into animals; Electronic Worksheet provides a more traditional format of practicing math skills. The program maintains up to 40 student records.

Suggested Use: Grades 1 to 4

Math Masters: Multiplication & Division (Software). (Math Masters Series). DLM Teaching Resources (DLM), 1988. ISBN 0-89505-575-9 (\$49.95)

Math Masters: Multiplication and Division teaches and reinforces multiplication and division math facts for all numbers from 0 through 25 with a wide array of options for problem selection. The game is fast-paced and an electronic worksheet offers horizontal or vertical problem displays, plus tutorial feedback for incorrect answers. Performance records may be stored. The package includes two 5 1/4" disks, and user's guide for the Apple II Computer.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Math, Money and You (Filmstrip Kit). National Geographic Society (NGS), 1989. 16 min. each Order No. C30449 (\$86.00)

The object of these filmstrips is to introduce basic concepts about money. Its value and uses are discussed in the context of a lemonade stand. This Canadian edition presents pennies, nickels, dimes and quarters and explains their worth.

Suggested Use: Grades Kindergarten to 2

Math Motivators: Puzzles, Games, Bulletin Boards, and Special Motivators (Print-Teacher-Reference). Marian R. Bartch and Jerry J. Mallett. (Good Year Books). Scott, Foresman and Company (GAG), 1986. 56 p. each ISBN 0-673-18264-9 (\$11.15 Grade 1 to 3) ISBN 0-673-18265-7 (\$11.15 Grade 4 to 6)

The function of these books is to provide teachers with a wide range of activities and games that maintain interest in skills, drills and practice. Sequentially ordered, each activity or game has components that can be reproduced for classroom use. Other required materials are readily available around the home or school. Detailed directions for construction and use are provided to ensure quick and easy adaptation for any elementary classroom. The two books contain suitable suggestions for each grade from one to six and teachers will find the

resources to be readily accessible and convenient teaching aids. Imperial measurements could be omitted or converted.

Suggested Use: Grades 1 to 3 and 4 to 6

Other Uses: Middle Years Math

Math Practice: Level I (Software). (IBM Math Practice Series). IBM Canada Limited (IBM), 1987. ISBN 6024663 (3 1/2") ISBN 6024353 (5 1/4") (\$106.40)

This is the first in a series of four packages designed to be used in conjunction with its counterpart from the IBM Math Concepts Series. The six lessons cover whole number addition and subtraction facts, two-digit addition and subtraction, and three-digit addition and subtraction. Each lesson presents a series of problems for which students may solve or skip problems, go back to a previous screen or return to the main menu. Animated balls are deposited in the right or wrong bucket after each response. A management system records activity, progress and time spent on the various activities for up to 50 students. Teachers may maintain student records, assign lessons, print reports, preview lessons and control such options as sound. This drill and tutorial package is designed for use by Grade 1 and 2 students, or for review by older students.

Suggested Use: Grades 1 to 2

Math Practice: Level II (Software). (IBM Math Practice Series). IBM Canada Limited (IBM), 1987. ISBN 6024664 (3 1/2") ISBN 6024354 (5 1/4") (\$106.40 each)

Available in either 3 1/2" or 5 1/4" diskette, this IBM program, designed specifically for Grades 3 and 4, but usable with older students as well, is the second of four programs in this series. There are 23 sequential lessons in four separate units. All lessons concentrate on the operations of addition, subtraction, multiplication, and division. The addition and subtraction questions include up to four digit numbers, two-place decimals, and common fractions with the same denominator. The multiplication and division questions include up to five-digit numbers. *Math Practice II* is designed to help students practice skills taught in *Math Concepts: Level II*. The programs are designed to complement each other, however, they may be used independently.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Math Practice: Level III (Software). (IBM Math Practice Series). IBM Canada Limited (IBM), 1987. ISBN 6024665 (3 1/2" diskettes \$106.40)

This IBM program is the third of four such programs, this one aimed at Grade 5 and 6, while the others are suitable for Grades 1 and 2, 3 and 4, and 7 and 8. The program consists of one 3 1/2" diskette and one manual. There are 21 twenty minute sequential lessons in the program. Included are drill practices for whole numbers, fractions and decimals: addition

and subtraction of up to four-digit numbers, multiplication and division of up to five-digit numbers, and addition and subtraction of decimals and common fractions.

Suggested Use: Grades 5 to 6

Other Uses: Middle Years Math

Math Predictable Storybooks (Print-Fiction). Carol Greenes, et al. DLM Teaching Resources (DLM), 1989. 22 p. each ISBN 155924-350-3 (\$108.00)

This series consists of six titles and one teacher's guide; all of the student titles are spiral bound and printed on heavy tag board. The stories are presented in rhyme with repeating phrases and all are of a predictable nature. The teacher's guide includes blackline masters of the text and some of the illustrations in order that students may make their own copies of the story. Topics covered in the series include addition, subtraction, counting, position and measurement.

Titles in the series:

I Can. Can You?
Jake's Closet
The Magic Shapes

Opossums in a Tree
Rebecca's Party
Which Hare is Where?

Suggested Use: Grades Kindergarten to 1

Math Problem Solving: A Unit of Study (Filmstrip Kit). United Learning (SSC), 1986. 9 to 13 minutes each Order No. 6226 (\$180.00)

The kit includes four filmstrips, four audiocassettes, a comprehensive teacher's guide, and a package of 20 duplicating masters. The first title in the series is "What's the Problem?" which explains the five-part problem solving strategy of the program including understanding the problem, devising a method to solve it, estimating the answer, calculating the answer and finally checking the answer. Filmstrip two is "Plan and Estimate" which shows rounding-off strategies, the importance of estimation, and the necessity of writing an equation. The third filmstrip, "Answer and Check," reinforces the necessity of calculating with an estimation in mind, and suggests different methods of renaming and checking your answer. The last filmstrip entitled "Using the System" uses imperial measures only to practice the skills already learned in the previous filmstrips.

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

Math Sponges - Enriching Ways to Soak Up Spare Moments (Print-Non-Fiction). Leigh Childs and Nancy Adams. Dale Seymour Publications (ADD), 1979. 53 p. Order No. 68384 (\$9.90 pbk.)

Recommended for classroom teachers, substitutes and parents alike, this small handbook contains hundreds of ideas to be used in short spaces of time. Each activity, or "sponge",

takes from 3 to 10 minutes and can be used in independent centers or for group work. Most activities provide variations and extensions for adaptability to a wide variety of skill and ability levels. The subject index includes the following headings: basic facts, computation, counting, number and shape familiarity, graphing, logic, patterns, money, numbers and place value. Permission is granted to reproduce pages as required for personal use.

Suggested Use: Grades 3 to 8

Other Uses: Middle Years Math

Math Trivial Pursuit (Intermediate) (Print-Teacher-Reference). Pat Dunn. Good Apple, Inc. (SCL), 1989. 58 p. Order No. 316-1073 (\$14.15)

Math Trivial Pursuit (Intermediate) is a cut-apart book for students in Grades 4 to 6. Resembling the popular board game of the same name, this book is designed to offer challenging and interesting activities in four categories: math concepts and applications, math computations, geometry, and math for daily living. The book has a game board in the center and 58 pages containing 232 question cards which need to be cut apart in order to play the game. All questions reinforce basic math skills in a game format.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

The Math Whiz (Print-Fiction). Betsy Duffy. Viking (PBC), 1990. 68 p. ISBN 0-670-83422-X (\$16.95 hdc.)

This is the story of Marty Malone, a math whiz since early childhood, who uses problem solving techniques to improve his quality of life in Grade 3. Always being chosen last for physical education teams is a serious concern for Marty, and his examples of real-life problem solving are humorous, down-to-earth and realistic. This early "chapter" book has brief chapters and plenty of white space making it an ideal bridge between picture books and novels. The story proves that a common problem plus a workable solution equals a good read.

Suggested Use: Grades 2 to 4

Math Works (Videotape Series). Agency for Instructional Technology (MHP), 1985. 14 min. each.

Titles in this series include: Adding and Subtracting Fractions and Mixed Numbers with Like Denominators; Adding and Subtracting Fractions and Mixed Numbers with Unlike Denominators; Comparing Decimals; Estimating by Rounding; Exploring Geometric Shapes; Exploring the Movement of Objects in Space; Forming Ratios; Identifying the Problem; Measurement: Dividing Regions into Subregions for Finding Area; Measurement: Find the Areas of Rectangles; Measurement: The Difference Between Perimeter and Area; Other Estimation Strategies; Place Value in Decimals; Place Value of Large Numbers; Probability: Possible Outcomes; Problem Solving: Looking for a Pattern; Relating Fractions and

Decimals; Simplifying the Problem; Statistics: Analyzing Data; Statistics: Collecting Data; Statistics: Sampling; Understanding the Placement of the Decimal Point; Using Diagrams and Models; Using Graphs; Using Maps; Using Mental Computation for Subtraction; Using Mental Computation for Addition; Using Tables.

Each title is annotated separately in the bibliography.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Mathematics: A Good Beginning - Strategies for Teaching Children. 4th ed. (Print-Teacher-Reference). Andria P. Troutman and Betty K. Lichtenberg. Brooks/Cole Publishing Company (NEL), 1991. 560 p. ISBN 0-534-15144-2 (\$37.95)

Directly applicable to elementary mathematics content and based on current research, this teacher reference presents realistic teaching strategies for K-6 students. For each concept presented a variety of applications and related activities are given. Concrete and symbolic representations are employed. Chapter titles include: Pre-Number Concepts; Base-Ten Numeration; Addition, Subtraction, Multiplication and Division of Whole Numbers; Factors, Multiples, Primes and Composites; Problem Solving; Geometric Figures and more. Another valuable chapter is Diagnosis, Before and After. Each chapter provides teacher goals, students objectives and computer tips and applications. All activities are classified into three levels of difficulty and enrichment activities are also suggested. Appendices include Skill Charts, Solutions, and Blackline Masters.

Suggested Use: Teacher Reference

Other Uses: Middle Years Math

Mathematics...A Way of Thinking (Print-Teacher-Reference). Robert Baratta-Lorton. Addison-Wesley (ADD), 1977. 351 p. Order No. 4322 (\$38.50 pbk.)

Aimed at teachers of Grades 3 to 6 this resource is an activity-centred approach that develops hands-on learning skills. Twenty-four chapters present step-by-step lessons with suggested dialogue and additional commentary about the presentation of the lesson itself. Concepts covered include arithmetic, problem solving, geometry, statistics, probability and more. Specific chapters deal with class management and the use of manipulatives. Helpful charts at the end of the resource include progress records, worksheets, blackline masters, and a comprehensive index.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Mathematics for Beginners (Filmstrip Kit). Moreland-Latchford (SSC), 1974. Order No. ML0038 (\$129.95)

This kit is a traditional presentation of mathematical concepts including six filmstrips with cassettes. Titles are: The Number Family and the Wicked Witch, The Dragon from Planet Kilogram, Mr. Cardinal and His Magic Cards, Johnny Appleseed Rides into Appleby,

Mr. Sun's Many Sons, and The Silly Shapes Build a Pyramid. This kit is useful for individual stations or full class presentations to introduce or review concepts. Also available in French.

Suggested Use: Grades Kindergarten to 3

Mathematics for Primary: Addition (16 mm). Paramount Communications (MHP), 1979. 9 min. Order No. MP 7777

In an animated fantasy, bunnies, boats, helicopters, desk lamps and roller skates appear on the screen to illustrate the operation of addition. Mathematical sentences are superimposed on the screen as sets of objects join together to make new groups and arrange themselves to illustrate the commutative property of addition.

Suggested Use: Grades 1 to 3

Mathematics for Primary: Subtraction (16 mm). Paramount Communications (MHP), 1979. 8 min. Order No. MP 7776

Animated objects, including hot dogs, fried eggs, cup cakes, ice cream and apples, appear on the screen and then disappear in a presentation that introduces and illustrates the concept of subtraction. Mathematical sentences are superimposed on the screen to express the subtraction operation as objects are 'taken away.'

Suggested Use: Grades 1 to 5

Mathematics Learning Centres (Print-Teacher-Reference). Janice Petrcek. STF Teaching Materials Centre (STF), n.d. 15 p. No Order No. (\$.65)

The author discusses the learning centre approach to mathematics with emphasis on developing a plan for a math learning centre in your classroom. Suggestions include actual activities, scheduling work times, record keeping and evaluation.

Suggested Use: Grades Kindergarten to 5

Mathematics: Making the Connection (Videotape). National Council of Teachers of Mathematics (MHP), 1991. 12 min. Dup. Order No. V5007

Actor Jeff Owens (Cosby Show) facilitates this discussion of the real-world applications of mathematics. Interviewed are Cathie Black (publisher USA Today), Peter Eisenman (architect) and Wynton Marsalis (musician). Two documents published by NCTM are promoted: *Curriculum and Evaluation Standards for School Mathematics* and

Professional Standards for Teaching Mathematics, both annotated elsewhere in this document.

Suggested Use: Teacher Reference

Other Uses: Middle Years|Secondary Math

Mathematics Readiness (Filmstrip Kit). Encyclopaedia Britannica (EBP), 1980.
Order No. 14120 (\$104.00)

Four captioned filmstrips comprise this kit: Counting and Recognizing Numbers, Comparing: Size and Number, Identifying and Classifying, and Ordering and Positioning. A teacher's guide with activity sheets is included. The filmstrips show children participating in various math activities and could be used in learning centres, small or large groups and for introducing work with manipulatives.

Suggested Use: Grades Kindergarten to 2

Mathematics Their Way: An Activity Centred Mathematics Program for Early Childhood Education (Print-Teacher-Reference). Mary Baratta-Lorton. Addison-Wesley (ADD), 1976. 398 p. Order No. 4320 (\$47.60 pbk.)

By the author of the *Workjob* series, this old favourite contains hundreds of ideas for primary teachers. The softcovered, spiralbound book contains 12 chapters, each dealing with one aspect of mathematics such as classifying, counting, graphing, etc. Each chapter teaches skills and concepts, self-concept and social interaction skills, and future applications. All of the activities described use familiar materials either purchased or constructed. Directions for construction of teacher-made materials are given. Sample teaching strategies with suggested dialogue are provided and illustrated with many black and white photographs. Throughout this activity-centred resource, activities are provided for entire classes or small groups. A glossary of materials contains photographs and definitions of manipulatives and concrete items.

Suggested Use: Grades Kindergarten to 2

Mathematics with Calculators: Resources for Teachers (Print-Teacher-Reference). Addison-Wesley (ADD), 1988. 75 p. each (\$64.30 each)

Order No. 22809	Kindergarten
Order No. 22810	Grade 1
Order No. 22811	Grade 2
Order No. 22812	Grade 3
Order No. 22813	Grade 4
Order No. 22814	Grade 5
Order No. 22815	Grade 6
Order No. 22816	Grade 7
Order No. 22817	Grade 8

Spanning nine grade levels in separate editions, this series is designed to supplement any basal mathematics series with calculator activities. Each package is composed of a three-ring binder with a 75-page teacher activity guide, 36 pages of blackline masters and a dozen overhead transparencies. The program consists of support materials to initiate and maintain a calculator component in any existing math program. The programs are thorough and comprehensive and incorporate various activities using flexible groupings of students. Early activities in each resource binder introduce the calculators and the keys thoroughly. The teacher's activity guide presents the focus of each lesson with numerous teaching suggestions and aids. The blackline masters include individual and group activities as well as gameboards. The overhead transparencies present and review certain calculator activities. Although some of the references are non-metric, they could be adapted or omitted. A valuable resource for every classroom teacher eager to incorporate calculators into their mathematics classes, these resources will assist teachers to correlate calculators with their present math program.

Suggested Use: Grades Kindergarten to 8

Other Uses: Middle Years Math

Mathematics: With Manipulatives (Videotape Series). Marilyn Burns. Cuisenaire Company of America, Inc. (SES), 1988. 20 min. each (\$129.00 each or complete set \$695.00)

Titles in the set include:

Geoboards	ISBN 0-938587-04-8
Base Ten Blocks	ISBN 0-938587-00-5
Pattern Blocks	ISBN 0-938587-01-3
Cuisenaire Rods	ISBN 0-938587-02-1
Color Tiles	ISBN 0-938587-03-X
Six Models	ISBN 0-938587-05-6

Mathematics: With Manipulatives is a series of six, 20 minute videotapes that present lessons on the effective use of concrete materials in the elementary classroom. The lessons demonstrate a different type of manipulative material in each video. Each set comprises one videotape and one guidebook. The guidebook gives step-by-step instructions to group leaders and provides blackline masters for classroom use. Each set is designed to be used as a staff-development resource and could be used by groups of teachers or by individual teachers. The videotapes could also be used for parent information sessions. The guidebook gives step-by-step instructions to group leaders and provides blackline masters for classroom use.

Suggested Use: Teacher Reference

Mathematics In Process (Print-Teacher-Reference). Ann and Johnny Baker. Heinemann (IRW), 1990. 170 p. ISBN 0-435-08306-6 (\$26.25)

This Australian resource attempts to incorporate a process writing philosophy with

mathematics with the goal of having children "experience" mathematics in meaningful ways. Examples and clear descriptions of the experiences of children working with process mathematics are shown. Suggestions are provided for assessment and evaluation, and the implications for incorporation of this philosophy are examined. Bibliography. Index.

Suggested Use: Teacher Reference

MathQuest (Print-Non-Fiction). Brendan Kelly, et al. Addison-Wesley (ADD), 1986-87.

MathQuest is an elementary mathematics program with a philosophy that children learn best through meaningful activity. The series features a variety of problem solving skills and strategies integrated throughout all strands of the program. A concentration on applications emphasizes the link between mathematics and other subject areas - Grades 1 to 3 have a language arts focus while Grades 4 to 6 have a social studies focus. Calculator and computer applications have been included. Evaluation support is provided through chapter check-ups, cumulative reviews and skills check-ups. The series has strong, often humorous, pictorial support with many illustrations and colourful artwork.

There are many components to the *MathQuest* program. The Program Manual, available for every grade, has many suggestions for developing the concepts of each lesson. As well, it provides information regarding classroom management evaluation techniques, manipulative materials and the integration of mathematics into other areas of the school curriculum, all in a three-ring binder with pull-out modules. Additional materials for enrichment, reinforcement, and reteaching for Grades 3 to 6 are provided in the Teacher's Resource Book. The blackline masters in this section are in three-ring binder format and divided into three sections: evaluation, reteaching and problem-solving. Other supplementary components are consumable workbooks (Grades 1 and 2), textbooks (Grades 3 to 6), file folder games (Grades 1 to 6), and an evaluation package (Grades 1 and 2).

MathQuest 1

BB 5337	Program Manual	\$54.00
ISBN 19104	Evaluation Package	\$16.65
ISBN 19103	File Folder Games	\$16.65
BB 5336	Workbook	\$10.05 (Consumable)

MathQuest 2

BB 5339	Program Manual	\$54.00
ISBN 19204	Evaluation Package	\$14.85
ISBN 19203	File Folder Games	\$16.65
BB 5338	Workbook	\$10.05 (Consumable)

MathQuest 3

BB 5341	Program Manual	\$54.00
BB 5342	Teacher's Res. Book	\$41.95
ISBN 19303	File Folder Games	\$38.40
BB 5340	Textbook	\$20.35

MathQuest 4

BB 5344	Program Manual	\$54.00
BB 5345	Teacher's Res. Book	\$41.95
ISBN 19403	File Folder Games	\$38.40
BB 5343	Textbook	\$20.35

MathQuest 5

BB 5347	Program Manual	\$54.00
BB 5348	Teacher's Res. Book	\$41.95
ISBN 19503	File Folder Games	\$38.40
BB 5346	Textbook	\$20.35

Suggested Use: Grades 1 to 5

Maths and Me (Helping Your Child With Mathematics) (Print-Non-Fiction). Avelyn Davidson. Shortland Publications (GIN), 1983. 40 p. Order No. 567922 (\$10.95 pbk.)

This New Zealand publication outlines the mathematical concepts encountered from birth to school age. It has colour photographs of children and parents interacting. The text provides suggestions, games and activities for parents and other child-care workers that encourage growth and development of mathematical concepts even at a young age. A special section contains familiar rhymes and jingles with number concepts, and finger play instruction is provided.

This resource can be recommended to parents of young children and also read by early childhood teachers.

Suggested Use: Teacher Reference

Maths in Context - A Thematic Approach (Print-Teacher-Reference). Deidre Edwards. Heinemann (IRW), 1990. 148 p. ISBN 0-435-08308-2 (\$25.25 pbk.)

Math in Context provides guidelines for implementing a mathematics program based on a thematic approach. There is advice on cooperative group work, classroom organization, and assessment and evaluation. Some of the themes addressed are: dragons, zoos, party time, traffic, and the environment. This Australian resource encourages the integration of mathematical language into all subject areas by providing good, practical ideas for primary teachers.

Suggested Use: Teacher Reference

Mathtime 1 (Print-Teacher-Reference). Olive Fullerton. Copp Clark Pitman Ltd. (CCP), 1985. ISBN 0-7730-1530-2 (\$119.94)

Mathtime 1 is a collection of 17 pull-out booklets gathered into a three-ring binder and

totalling over 300 pages of Canadian material. As well, the binder contains 144 pages of activity masters and 66 pages of program masters suitable for reproduction. *Mathtime 2*, a follow-up program, is described elsewhere in this document. The philosophical statements in the introduction compare favourably with the foundational beliefs of the English Language Arts curriculum. Topics covered include sorting, ordering, numbers 1 to 5, 0 to 9, space, measuring, facts to 5, facts to 9, graphing, patterning numbers to 99, non-standard units of measuring, facts to 10, shapes and number concepts. This activity-based resource suggests teacher observation and student/teacher interviews as evaluation strategies.

Suggested Use: Grades Kindergarten to 3

Mathtime 2 (Print-Teacher-Reference). Olive Fullerton. Copp Clark Pitman Ltd. (CCP), 1987. ISBN 0-7730-1531-0 (\$119.94)

Mathtime 2 is a follow-up to *Mathtime 1* and features 14 individual pull-out booklets in a three-ring binder. As well, the binder contains 115 pages of activity masters and 66 pages of program masters suitable for reproduction. Like *Mathtime 1*, language is acknowledged as central to learning in all subject areas. Topics covered include sorting and ordering, numbers to 10, 100, 999, measurement, graphing, patterning, shapes, fractions, decimals and number concepts. A problem solving approach is incorporated into all of the activities, many of which are interdisciplinary.

Suggested Use: Grades Kindergarten to 3

MathWorks (Print-Non-Fiction). Heather J. Kelleher. Houghton Mifflin (HMF), 1992.

MathWorks is an activity-oriented, materials-based program. Real-world themes that use everyday materials are divided into three distinct strands: number content, spatial content, and data analysis and problem solving. Assessment is on-going and uses a diagnostic teaching approach with formal and informal methods of testing and observation. Flexible groups are encouraged and suggestions are provided for adaptations and class management. There are two *MathWorks* programs at this time: *MathWorks A* is for use with early primary, and *MathWorks B* is for use with late primary, corresponding closely to Grades 1 and 2. Both books are coilbound, oversize, and feature colourful photographs and colour-coded sections. A bibliography of children's literature titles grouped by mathematical concepts is provided. Each theme lists language arts connections.

MathWorks components include: Teacher's Resource Book which gives step-by-step plans for implementing an activity-oriented, integrated program; a Blackline Master package which comprises general, assessment and evaluation masters, and parent letters all three-hole punched; and a Gameboard Kit consisting of four cooperative games for each grade level.

Ordering numbers and prices:

BB 6065	MathWorks A, Teacher's Resource Book	\$96.00
BB 6437	MathWorks A, Masters A	\$30.00
BB 6439	MathWorks, Gameboards A	\$19.95
BB 6066	MathWorks B, Teacher's Resource Book	\$96.00
BB 6438	MathWorks B, Masters B	\$30.00
BB 6440	MathWorks, Gameboards B	\$19.95

Suggested Use: Grades 1 to 2

The Meaning of Percent (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02574

To boost lagging business at the end of a garage sale, children reduce prices on their merchandise by 5% to 50%. They learn how to calculate discounts for items. An animated section of the program depicts 100 members of a marching band as concepts of 15%, 20% and 75%. This program contains excellent subject matter to be used in mathematics or science.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math|Science

Measurement: Deciding How Close is Close Enough (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1985. 15 min. Dup. Order No. V03673

After cutting the boards for a treehouse wrong, the Treetops Club gets better results by measuring properly. The tailor teaches a mouse that he can't be measured with the same scale used for an elephant.

Suggested Use: Grades 3 to 5

Measurement: Dividing Regions Into Subregions for Finding Area (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02494

This program helps students recognize ways of dividing an irregular region and working with the areas of its subregions to determine its total area.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Measurement: Find the Areas of Rectangles (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02470

Covering a rectangular area with square units, counting the units and multiplying the number

of squares along the length and width reinforce the meaning behind the formula for finding area.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Measurement: The Difference Between Perimeter and Area (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02478

Major points of this program are that perimeter measures boundary in linear units; that area measures the region inside the boundary in square units, and that the same perimeter can surround very different areas.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Measurements: Fun, Facts, and Activities (Print-Non-Fiction). Caroline Arnold. (Easy-Read-Geography Activity Book). Franklin Watts (GEA), 1984. 32 p. ISBN 0-531-04721-0 (\$13.50)

Grade 3 to 4 students will enjoy this book which explains how various items are measured. The measurement of weight, distance, speed, time, liquids, temperatures, wind and area are included. Although American in origin, metric measurements are included where necessary. Instructions are provided for making counting sticks, growth charts, water-glass chimes and sand-clock timers. Table of contents. Glossary. Index. Note - limited stock available.

Suggested Use: Grades 3 to 4

Measuring Angles (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02587

Through vignettes in which dancers swing their arms and legs at specified angles and a brother and sister learn to play pool, students discover that angles form where two rays meet. They learn that angles measure rotation around a point and that in measuring an angle, it helps to decide whether it is greater or smaller than 90 degrees - and to estimate by how much.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Measuring Volume (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02580

Volume can deceive when different shapes take up the same amount of space. In vignettes, children invent ways to determine how many baseball boxes will fit in a display case and how much water an aquarium will hold. Students see why the $L \times H \times W$ formula works, how it is

a shortcut for other methods of measurement and why the answer always appears in cubic units.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Mellsande (Print-Fiction). E. Nesbit. Harcourt Brace Jovanovich Publishers (CMG), 1989. unpaginated. ISBN 0-15-253164-5 (\$13.95 U.S. hardcover.)

Rectifying a wish that has caused Melisande to be bald presents even more problems for the beautiful princess. The mathematical progression of her hair growth (hair a yard long that will grow an inch a day and twice as fast everytime it is cut) means that only a very clever prince can solve her problem. Wonderful illustrations help to offset the large amount of text. The measurements are all given in yards, feet and inches.

Suggested Use: Grades 2 to 4

Other Uses: English Language Arts

Mental Math and Estimation (Print-Teacher-Reference). Gary G. Bitter. DLM Teaching Resources (DLM), 1989. unpaginated. ISBN 1-55924-452-6 (\$69.00)

Mental Math and Estimation is a program consisting of 128 blackline masters and a teacher's guide in three-ring binder format. There are 30 lessons, and each lesson contains four activity pages. The lessons provide consistent, progressive instruction in mental computation using whole number multiples of tens, hundreds or thousands. Real-world math applications are provided in this resource and each activity may be used with the entire class, with individuals or in cooperative learning groups.

Suggested Use: Grades 3 to 5

Mental Math in the Middle Grades: Blackline Masters (Print-Teacher-Reference). Jack A. Hope, et al. (Mental Math). Dale Seymour Publications (BB), 1987. 121 pages. Order No. BB 6023 (\$11.15 paperback.)

Mental Math in the Middle Grades is the second in a series of three books designed to help students learn the techniques of "figuring in your head". The first book, for primary students, focuses on simple calculation with whole numbers using basic facts of addition, subtraction, multiplication and division. This resource for middle years students extends the skills developed in the preceding book with more challenging calculations. The perforated pages include teaching pages and power builder pages as well as review pages. Teacher notes offer helpful suggestions and unit and cumulative progress tests are provided. Also available is a third book intended for Grades 6 through 8 and containing more advanced lessons of calculating mentally with fractions, decimals, percents and whole numbers.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Mental Math in the Primary Grades: Blackline Masters (Print-Teacher-Reference). Jack A. Hope, et al. (Mental Math). Dale Seymour Publications (BB), 1988. 117 p. Order No. BB 6022 (\$11.15 pbk.)

This resource provides a practical introduction to the techniques of mental math. Designed for primary grades, it contains 36 sequential lessons covering thinking strategies for addition, subtraction, patterns and larger numbers. Background information is provided for the teacher and detailed step-by-step instructions are given. This planned program of instruction in mental mathematics includes reproducible blackline masters in the form of illustrated transparency masters. The resource develops prerequisites to mental computation such as understanding and using patterns in the base 10 system. Complete teacher notes, bulletin board ideas, practice sets and unit tests are included. Also available: *Mental Math in the Middle Grades* and *Mental Math in Junior High*.

Suggested Use: Grades 2 to 4

Meteor Multiplication (Software). (Arcademic Skill Builders in Math). DLM Teaching Resources (DLM), 1982. ISBN 1-55924-008-3 (\$49.95)

This software program, designed for the Apple II family of computers, assists students in the multiplication of numbers 0 through 12 in a shower-of-meteors format. Included in the program are worksheets, blackline masters, corresponding flashcards, teacher's manual and one 5 1/4" diskette.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Métis Crafts: Finger Weaving (Filmstrip Kit). The Curriculum Unit - Gabriel Dumont Institute of Native Studies and Applied Research (GDI), 1985. No Order No. (\$79.95)

This Saskatchewan produced filmstrip kit provides instruction and demonstration of the procedural steps for fancy or design finger weaving. Materials required, vocabulary needed, and the actual process are explained and modelled. The kit consists of a filmstrip, an audio cassette and a teacher's guide. This craft is relatively unknown and the kit is of interest for that reason alone. Instructions include metric measurements, patterning and sequencing opportunities.

Suggested Use: Grades 5 to 12

Other Uses: Middle Years Math|Secondary Math

Métis Crafts: Quill and Bead Earrings (Filmstrip Kit). The Curriculum Unit - Gabriel Dumont Institute of Native Studies and Applied Research (GDI), 1985. No Order No. (\$34.95)

This Saskatchewan produced kit consists of one filmstrip, one audio cassette and one teacher's guide. The filmstrip shows the importance of coloured, symmetrically patterned earrings as a key component of Indian dance regalia and daily attire. In 40 frames the process of making earrings using seed beads and porcupine quills is demonstrated. Very

detailed instructions and hints are provided for the construction of 30 pairs of earrings. Numerous opportunities for counting and patterning are provided.

Suggested Use: Grades 5 to 12

Other Uses: Middle Years Math|Secondary Math

Metric (16 mm). National Film Board (MHP), 1976. 10 min. Order No. MP 7282

Although somewhat dated, this film relates the whimsical story of the metre. It is relevant to the change to the metric system in Canada and spelling is in accord with SI rules. Upbeat.

Suggested Use: Grades 3 to 9

Other Uses: Middle Years Math

Metric Activity Games (Videotape). (Metric Songs and Games). Alberta Educational Communication (MHP), 1976. 9 min. Dup. Order No. V00052

Teacher designed metric activities are highlighted in this program. This videotape reviews the use of metric prefixes as they are used with linear measurement. Area measurement (length x width) is introduced and the Paper Airplane Race will be used to combine the two.

Suggested Use: Grades 1 to 9

Other Uses: Middle Years Math

Metric Board Games (Videotape). (Metric Songs and Games). Alberta Educational Communications (MHP), 1976. 9 min. Dup. Order No. V00054

This program looks at four metric board games: 'Metric Land', illustrated in *Metric Measurement Activities*, published by the Edmonton Public School Board, available from Riley's Reproduction & Printing Ltd., 10168 - 105 street, Edmonton; 'Travel Metre' from Think Metric Associates, 8452 - 117 street, Edmonton; 'Metrication' from Metrix Corp., Box 19101, Orlando, Florida; 'Metric Match' from Ideal Toy Company (available in department stores).

Suggested Use: Grades 1 to 9

Other Uses: Middle Years Math

Metric Measurement (Filmstrip Kit). Moreland-Latchford (SSC), 1974. 6 - 14 min. each Order No. ML0045 (\$89.95)

This filmstrip kit discusses the history and origin of the base units of length, area and volume measurement. Practical demonstrations are employed to develop formulas for using these units of measurement. Several hands-on examples and stop-and-go techniques are presented for student participation. Titles in the set: Linear Units, Area Units, Volume Units, The Metric World. Also available in French.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

Metric Measurement: Length and Area (16 mm). (The Metric System).
Moreland-Latchford Productions (MHP), 1974. 12 min. Order No. MP 5466

This film features a presentation of the metre - the base unit of length. It includes an introduction of the most commonly used units which are multiples or submultiples of the metre. Practical demonstrations present the concept of area in the classroom and home.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Metric Measurement - Mass (16 mm). (The Metric System). Moreland-Latchford (MHP), 1974. 9 min. Order No. MP 5447

Practical demonstrations clearly explain the efficient multiples and sub-multiples of the kilogram for measuring items from precious metals to heavy cargo. The film tells of the advantages of using SI units for world trade.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Metric Measurement - Volume and Capacity (16 mm). (The Metric System).
Moreland-Latchford (MHP), 1974. 9 min. Order No. MP 5446

Visual identification is the basis for this film which explains the relationship between cubic units and the litre. Everyday experiences are used to illustrate the concept of volume. The most commonly used units are given and everyday items are used to reinforce identification of the units.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Metric Song (Videotape). (Metric Songs and Games). Alberta Educational Communication (MHP), 1976. 9 min. Dup. Order No. V00051

This videotape was designed to teach children a metric song and to acquaint the viewers with Canada's Metric Maple Leaf symbol. In addition, this program introduces the 'first names' (i.e., prefixes) used in the metric system and tells something about the three most common 'metric families'.

Suggested Use: Grades 1 to 9

Other Uses: Middle Years Math

Metric Songs and Games (Videotape Series). Alberta Educational Communication (MHP), 1976. 9 min. each.

Titles in the series include: Metric Activity Games; Metric Board Games; and Metric Song.

Each title is annotated separately in the bibliography.

Suggested Use: Teacher Reference

The Metric System (Videotape Series). SaskMedia (MHP), 1977. 11 and 16 min. each.

Titles in the series include: How To Go Metric; Why go Metric? Each title is annotated separately in the bibliography.

Suggested Use: Teacher Reference

The Metric System, Unit 1: Base Units and Prefixes (Study Prints). Encyclopaedia Britannica Educational Corporation (EBP), 1976. Order No. 18050 (\$62.00)

Ten study prints and one study guide show cartoon representations of Standard International Units of Measure. The flip-side of each poster contains more details of metric equivalents. Full colour.

Suggested Use: Grades 4 to 12 **Other Uses:** Middle Years Math|Secondary Mathematics

A Million Chameleons (Print-Fiction). James Young. Little, Brown and Company (LIT), 1990. unp. ISBN 0-316-97129-4 (\$14.95 hdc.)

This fanciful presentation shows a million chameleons of every colour under the sun. The rhyming verses require a response, and students guess what colour the chameleons will turn on the next double-page spread. The book subtly shows that a million is very many, while allowing opportunities for estimating, counting and patterning. More fun than scientific, the resource has language-arts incorporation possibilities.

Suggested Use: Grades Kindergarten to 2

Minus Mission (Software). (Arcademic Skill Builders in Math). DLM Teaching Resources (DLM), 1982. ISBN 1-55924-007-5 (\$49.95)

One of a series of six Apple software programs in the Arcademic Skill Builders set, this program provides practice in subtracting numbers from 0 to 9. The set consists of one 5 1/4" disk, 52 flashcards that correspond with the computer program, teacher's manual and blackline masters. As well, worksheets are included which, like the program, are in three levels of difficulty. Progress charts and student record sheets are included. A moving robot and laser beams are visual motivators in the computer program.

Suggested Use: Grades 1 to 3

Mira Math Activities for Elementary School: A New Dimension of Motivation and Understanding (Print-Teacher-Reference). Exclusive (BB), 1973. 88 p.
Order No. BB 6025 (\$6.70)

Introductory and advanced activities and intriguing investigations for using Mira are presented. The book is suitable for Grades 4 through 6, or even later if students have not previously used Mira. The resource contains over 80 perforated pages of blackline masters covering 50 geometric activities using the Mira unit. Section A is an Introduction to Reflections. Section B emphasises Reflection, Congruence and Symmetry using a more formal approach. Section C deals with Basic Constructions with techniques that are based on the properties of line symmetry. A follow-up *Mira Math Activities for High School* is also available.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Mr. Brown's Magnificent Apple Tree (Print-Fiction). Yvonne Winer. Ashton Scholastic (SCH), 1985. unp. ISBN 0-86896-303-8 (\$4.95)

Apples keep disappearing from Mr. Brown's magnificent apple tree in this story that features counting forwards and backwards to five. It portrays wonderful verbs in attractive illustrated script. Predictable and repetitive, the story is illustrated with effective cartoon-like characters. A natural for correlation with whole language, this story concludes with a witty twist.

Suggested Use: Grades 1 to 2

Other Uses: English Language Arts

Maira's Birthday (Print-Fiction). Robert Munsch. Annick Press (FIR), 1987.
ISBN 0-920303-83-8 (\$4.95 pbk.) ISBN 0-920303-85-4 (\$12.95 hdc.)

In typical Robert Munsch style, outrageous exaggeration is the key to this birthday story. All of the children from Kindergarten to Grade 6 show up for Maira's party. Problem solving, counting, estimation and the passage of time are all mathematical themes to be explored in this traditional Canadian favourite.

Suggested Use: Grades Kindergarten to 3

Other Uses: English Language Arts

Moja Means One - Swahili Counting Book (Print-Non-Fiction). Muriel Feelings. Dial Press (MCC), 1971. unp. ISBN 0-8037-5777-8 (\$17.55 hdc.)

This Caldecott Honor Book of 1971 has captured the life and culture of an East African village. Each double-spread page shows a view of the village, our number and its equivalent Swahili word with phoenetic respelling, and an informative sentence that illustrates the related number. Soft brown and white paintings illustrate the numbers 1 to 10. For older readers, an introduction discusses the geography of Africa and other related information.

Suggested Use: Grades Kindergarten to 5

More Teasers from Tobbs: Decimals and Fractions (Software). Wings for Learning Inc. (WINGS), 1989. ISBN 171202 (\$87.00)

This is the sequel to the 1982 version entitled *Teasers by Tobbs*. This version deals with decimals and fractions whereas the predecessor dealt with whole numbers from 1 to 99. Greater flexibility has also been incorporated in order that students have the opportunity to do more critical thinking instead of allowing the computer to do all of the calculations. The options provided by the program can be set to allow estimation and mental math wherever possible. This program gives ample practice with fractions and decimals, particularly the operations of addition and multiplication. A few examples in the teacher's guide use non-metric measures but would require minor adaptations only. The package consists of a three-ring binder, teacher's guide and a 5 1/4" disk with backup designed for the Apple computer.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

The Most Amazing Hide-and-Seek Counting Book (Print-Fiction). Robert Crowther. Penguin Books (PBC), 1988. ISBN 0-670-48997-2 (\$24.95 hdc.)

This sturdy pop-up book is designed to motivate counting and estimation by ones up to 20 and by tens up to 100. The resource uses numerals and number words. The illustrations also relate to the science theme of pond life.

Suggested Use: Grades Kindergarten to 1

Other Uses: Elementary Science

Mouse Count (Print-Fiction). Ellen Stoll Walsh. Harcourt Brace Jovanovich (CMG), 1991. unp. ISBN 0-15-256023-8 (\$11.95 U.S.)

Cut-paper collage illustrations are featured in this simple counting book in which ten clever mice outsmart a hungry snake. Plenty of counting opportunities are provided upward to ten, and back to one again when the mice "uncount" themselves.

Suggested Use: Grades Kindergarten to 2

Muck and Mire's Metric Follies (16 mm). Lufkin (MHP), 1977. 17 min. Order No. MP 7352

This is a musical presentation that explains metric measurements. Two bumbling lumber yard employees learn how to make metric estimations and how to be comfortable with their new knowledge.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Multilingual Numbers Kit (Study Prints). Saskatchewan Education. (BB), 1991. BB 6246 (\$10.25)

This is a series of 10 posters printed on 30 cm by 45 cm heavy gauge paper. Each poster features drawings of animals native to northern Saskatchewan including moose, pelicans, geese, foxes, rabbits and others. Number words are printed on separate cards in five languages: English, French, D  n  , Cree and Saukteaux. The number words are to be cut apart and inserted into the slits below each animal picture. Authentic.

Suggested Use: Grades Kindergarten to 5

Multiplication for Beginners (16 mm). Coronet Instructional Films (MHP), 1966. 12 min. Order No. MP 4592

This film shows that we may use multiplication whenever we combine sets that have the same number. Moving from the simple concept of repeated addition, the importance of multiplication facts and the use of the number line in checking them is introduced. Arrays are explained and used to describe the law of order and the distributive law for multiplication.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Multiplication - Revised (Videotape). (Beginning Mathematics). Magic Lantern Films (MHP), 1987. 14 min. Dup. Order No. V03007

Children walking in pairs on a class trip to the zoo introduce the idea of multiplication as repeated addition. The multiplication properties of zero and one are stressed, and the full multiplication table up to tens is developed. The simplest form of multiplication is introduced as children determine how much money they need to purchase drink mix for a picnic.

Suggested Use: Grades 1 to 5

Multiplication With Fractions (16 mm). Davidson Films (MHP), 1970. 5 min. Order No. MP 5077

In this animated film a young cloud wishes to become a full-fledged rain cloud. He goes through various stages in his apprenticeship including calculating areas. He multiplies whole numbers by whole numbers, whole numbers by fractions and fractions by fractions.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Multiplication With Fractions and Mixed Numbers (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V05077

On a treasure hunt with clues that involve fractions, members of a children's club meet a

friend who will help in return for one-fifth of the booty. They learn that to multiply mixed numbers, they must put all numbers into fractional form. Graphics show why the product of fractions is smaller than the numbers multiplied.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

My Signing Book of Numbers (Print-Non-Fiction). Patricia Bellan Gillen. Kendall Green Publications (GUP), 1988. 59 p. ISBN 0-930323-37-8 (\$13.95 U.S.)

A publication from Gallaudet University, this oversize book, with large, colourful illustrations teaches the numbers 0-20, 30-100 by tens, 1,000 and 1,000,000 in sign language. Ten additional pages provide background information on American Sign Language (ASL). Charts of manual numbers, the manual alphabet and modified handshapes are included.

Suggested Use: Grades Kindergarten to 5

My Silly Book of Counting (Print-Fiction). Susan Amerikaner. (My Silly Book). Silver Press (IRW), 1989. unp. ISBN 0-671-68365-7 (\$5.56 pbk.)

One of four books in the series, this book introduces the numbers from one to ten. The large text and simple rhyme, as well as the silly antics of the animals combine to make this early counting book fun for youngsters. The numbers are displayed in word and number and a two line verse mentions each number. Colourful illustrations contain additional details that reinforce the concepts.

Suggested Use: Grades Kindergarten to 1

Nature's Math, Part I (Look, Listen, Explore). National Geographic Society (NGS), 1991. 15 min. each. Order No. C30769 (\$86.00)

Consisting of a teacher's guide with discussion questions and activities and two filmstrips with audiocassettes, these participatory filmstrips invite non-verbal response such as "raise your right hand" or "pat your knees." "Count on Animals" features zoo animals from one to ten and back to one again using rhyming words. "Patterns by the Sea" invites children to clap or pat the patterns they see. The graph activities are well done, and students use observation skills to practice number sequencing, and to find, name and extend patterns. *Nature's Math Parts 1 and 2* may be purchased together for \$154.85, use Order No. C30768.

Suggested Use: Grades Kindergarten to 2

Nature's Math, Part II (Look, Listen, Explore). National Geographic Society (NGS), 1991. 15 min. each. Order No. C30775 (\$86.00)

In the filmstrip "It's Raining Cats and Dogs" students are invited to participate in making

visual discriminations between animals, in forming sets, and in answering story problems. Math vocabulary, including more, less, all, same, bigger, and smaller, is stressed. In "Peas in a Pod" part-to-whole relationships are examined. Students try to identify foods by looking at closeup images and listening to riddle clues. Basic fractions are introduced using food parts. The accompanying teacher's guide contains discussion questions and activities. *Nature's Math Parts 1 and 2* may be purchased together for \$154.85, use Order No. C30768.

Suggested Use: Grades Kindergarten to 2

Northern Number Charts (Study Prints). Council for Yukon Indians - Curriculum Development Program. Ye Sa To Communications Society (CDP), n.d. No Order no. (\$2.20)

Consisting of ten 8 1/2 x 11 inch cards, this set of study prints features the numeral, the number word and the corresponding number of objects printed black on orange and all surrounded with a heavy black border. The objects pictured are familiar to northern children: one black kettle, two seal skin mittens, three black ravens and so on up to 10. The illustrations are starkly simplistic and provide a welcome change from traditional counting cards.

Suggested Use: Grades Kindergarten to 1

Number Mysteries (Print-Non-Fiction). Cyril Hayes and Dympna Hayes. (CHP Mindbender Books). Durkin Hayes Publishing (EBP), 1987. 32 p. Order No. 1145E (\$3.95 pbk.) Order No. 51451 (\$14.25 hdc.)

Using logic, estimation and manipulation, the numerous enrichment activities contained in this slim volume require students to use a variety of computational skills, problem-solving techniques and thinking levels. As suggested by the title, the interesting, challenging and fun activities are "mind benders" which require critical thinking skills to solve.

Suggested Use: Grades 3 to 5

Numbers (Print-Non-Fiction). Karen Bryant-Mole. (Understanding Maths). Wayland (NEL), 1991. 32 p. ISBN 1-85210-845-2 (\$19.50 hdc.)

This British book is one of six in the "Understanding Maths" series. Presented in pot-pourri fashion, this resource touches briefly on many topics: reading, writing and ordering numbers up to several thousand, place value, and regrouping. It shows examples of "greater than," "less than," estimation, whole and negative numbers, fractions, decimals and percents. Every concept in the book is illustrated with colourful photographs and a glossary and index are provided.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Numbers All Around Us - Revised (Videotape). (Beginning Mathematics). Magic Lantern Films (MHP), 1987. 12 min. Dup. Order No. V03010

This program shows children they can be comfortable using numbers by demonstrating how numbers help us daily in different ways. For instance, they help us identify room numbers, addresses, and zip codes; they help us when we need to count things, and they keep things in order, such as page numbers in a book.

Suggested Use: Grades 1 to 5

Old Enough (Print-Fiction). Peter Eyvindson. Pemmican Publications Inc. (PEG), 1986. 24 p. ISBN 0-919143-41-5 (\$5.95)

Saskatchewan author and storyteller Peter Eyvindson offers a story of a too-busy father who has wonderful plans to play with his son but no time to do so. Only when the father becomes a grandfather does he find the necessary time - he, too, is "old enough" now. The passage of almost 30 years is shown on calendars in the margins of each double-page spread and on the face of the father-become-grandfather. The father's plans for spending time with his son are cleverly incorporated into each scene. Two different styles of print show the perspective of the boy and the father as time passes. The illustrations are black and white and portray positive male role models in Aboriginal family settings.

Suggested Use: Grades 2 to 3

Other Uses: English Language Arts

On the Button in Math: Activities for Young Children (Print-Teacher-Reference). Carol A. Thornton and Judith K. Wells. DLM Teaching Resources (DLM), 1990. 92 p. ISBN 1-55924-325-2 (\$53.00)

On the Button is comprised of one coilbound activity guide and a cloth bag of 60 oversize buttons and four laces. The buttons are in four colours, two sizes and three different shapes (with extra-large threading holes) and would be worthy of purchase even alone. The guide features 60 activities of developmentally appropriate hands-on mathematical experiences for primary children. Sorting, classifying, patterning, ordering, counting, comparing, graphing and problem solving are just a few of the activities you could do with this resource. Eight blackline masters at the end of the activity guide include parent information letters, student record sheets and further activities. The book is illustrated with numerous black and white photographs and sketches.

Suggested Use: Grades Kindergarten to 2

One Crow: A Counting Rhyme (Print-Fiction). Jim Aylesworth. J. B. Lippincott (HCP), 1988. unp. ISBN 0-397-32174-0 (\$16.95 hdc.)

Verse by verse, barnyard animals are introduced in easy-to-count groupings from one to ten throughout a brilliant summer day. In the first chapter one crow, two squirrels, three puppies,

four kittens, five horses, six pigs, seven hens, eight sheep, nine cows and ten children are pictured in calm pastoral settings. Chapter two features the same groupings of animals and people, but in a winter habitat. A counting book for all seasons!

Suggested Use: Grades Kindergarten to 1

Other Uses: English Language Arts

One Duck, Another Duck (Print-Fiction). Charlotte Pomerantz. Greenwillow Books (MCM), 1984. unp. ISBN 0-688-03745 (\$15.95 hdc.)

Grandma Owl teaches her grandson to count at the pond. "Another duck, another duck. No. You know how to count. One, two, three, and so on." Numeration from one to ten is practiced first on baby ducks, then on swans and finally the owl decides to count the stars on the way home. A French translation is also available.

Suggested Use: Grades Kindergarten to 1

One Good Horse: A Cowpuncher's Counting Book (Print-Fiction). Ann Herbert Scott. Greenwillow Books (MCM), 1990. unp. ISBN 0-688-09146-6 (\$18.95 hdc.)

Amelia Bedelia's illustrator Lynn Sweat uses a western landscape to illustrate this simple counting book. A cowboy and his young son check the cattle and count objects they pass or see on the horizon: one good horse, two buckaroos, three cow dogs and so on.

Suggested Use: Grades Kindergarten to 2

One Gorilla (Print-Fiction). Atsuko Morozumi. Doubleday Canada Limited (DOU), 1990. unp. ISBN 0-385-25255-2 (\$14.95 hdc.)

This appealing counting book has delicate illustrations of the narrator's favourite things including one gorilla, two butterflies, three budgerigars, four squirrels and so on up to 10. In each double page spread one gorilla appears and is visually transported through fields, forests, seas and gardens. It is moderately challenging to locate each creature mentioned. The book concludes with a pictorial graph of the animals counted.

Suggested Use: Grades Kindergarten to 2

Other Uses: English Language Arts

1 Is One (Print-Fiction). Tasha Tudor. Checkerboard Press (Macmillan, Inc.) (MMC), 1956. unp. ISBN 0-02-688535-2 (\$6.50 pbk.)

Written over three decades ago, this traditional counting book has been used by generations of children. It depicts the numerals sequentially from 1 to 20 using simple rhyming verse.

The odd numbers are shown in full-colour double-page spreads with delicate floral borders while the even numbers are shown in black and white sketches.

Suggested Use: Grades Kindergarten to 1

101 Winning Ways with Base Ten: Junior Level (Grades 4-6) (Print-Teacher-Reference). Marion Cross and Jan Holland. (Active Learning Series). Exclusive Educational Products (BB), 1989. 140 p. Order No. BB 6024 (\$35.60)

Hand-on activities with base ten materials are provided in this three-ring binder which expands upon the ideas presented in the primary binder of the same name. The Junior version has sequential blackline masters which provide opportunities for students to count, estimate, group objects, build numbers, measure, and record information. Also included are suggestions for classroom organization, evaluation techniques and ideas for integration with other mathematics strands and subject areas.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

101 Winning Ways with Base Ten: Primary Level (Grades 1-3) (Print-Teacher-Reference). Marion Cross and Jan Holland. (Active Learning Series). Exclusive Educational Products (BB), 1989. 140 p. Order No. BB 814 (\$35.60)

This resource presents a child-centered approach to mathematics by providing a series of hands-on activities which encourage experimentation and discovery. One hundred and forty pages of blackline masters integrate learning activities with the manipulative approach to learning. Flexible adaptations of the sequential exercises in this resource allow for individual, small and large group activities. Numerous base ten exercises, activities and worksheets encourage hands-on participation. Suggestions for classroom organization and evaluation techniques are discussed.

Suggested Use: Grades 1 to 3

One, Two, One Pair! (Print-Non-Fiction). Bruce McMillan. Scholastic Inc. (SCH), 1991. unp. ISBN 0-590-43767-4 (\$12.95)

The concept of pair is firmly established in this focused concept book in which colour photographs show the two parts of a pair on one side of each double-page spread, and the pair together on the other page. As the pictures progress we realize that preparations are underway to go ice skating, but it is only at the very end that we realize that two children have been preparing - a set of twins. The only text are the words "one", "two," and "one pair", but these few words provide the basis for discussion possibilities.

Suggested Use: Grades Kindergarten to 2

Ordering Decimals (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02579

Jeremy has trouble shelving library books under the Dewey Decimal System because he doesn't know whether .6 or .156 is larger. He learns that putting a zero to the right of a decimal number does not change its value but can help in comparing decimals; that he should start from the left in analyzing decimals, and that there's always room between two decimals for another number.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Other Estimating Strategies (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02488

Rounding and front-end truncation vary in their usefulness, depending on the problem. The program emphasizes the reasoning process that underlies choosing a strategy to fit the need.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Our First Big Book of Numbers (Big Book). Dora Scales. (Moving into Math). Rigby Education (GIN), 1986. unpaginated. Order No. R73245 (\$27.95)

Our First Big Book of Numbers is a beginner's book for number and set recognition up to and including 10. Detailed, large and varied illustrations provide numerous occasions to practice counting with one-to-one correspondence. A simple, predictable vocabulary states the objects to be located and counted. Number words and number symbols are provided for each double-page spread. A 30-page teacher activity guide with numerous language experience activities completes the package.

Suggested Use: Grades Kindergarten to 2

Our Second Big Book of Numbers (Big Book). Dora Scales. (Moving into Math). Rigby Education (GIN), 1986. unpaginated. Order No. R73247 (\$27.95)

Continuing where *Our First Big Book of Numbers* left off, this big book introduces the numbers 11 to 20 using ideas and activities similar to the original. Through familiar objects and settings and a variety of illustrations, students have more practice recognizing, counting and naming numbers. This book provides advanced concepts such as even and odd numbers, measuring recipe ingredients, calendars, graphs, and money applications. The teacher's guide contains numerous suggestions for language arts correlation.

Suggested Use: Grades Kindergarten to 2

Over in the Meadow: A Counting-Out Rhyme (Print-Fiction). Olive A. Wadsworth. Puffin Books (PBC), 1985. unp. ISBN 0-14-050606-3 (\$5.99 pbk.)

The bouncy, catchy rhyme and repetitive nature of the verses make this early counting book a winner. Wet and dry land animals of the meadow such as crows, beavers, frogs and ducks are incorporated into the rhyme. The numbers 1 to 10 are beautifully illustrated with many visual surprises.

Suggested Use: Grades Kindergarten to 1

Other Uses: English Language Arts

P. Bear's New Year's Party - A Counting Book (Print-Fiction). Paul Owen Lewis. D. W. Friesen & Sons Ltd. (FIR), 1989. ISBN 0-9692640-8-9 (\$4.95 pbk.)

Illustrated with black and white animals such as panda bears, zebras, dairy cows, snow leopards, and dalmations, and contrasted with red numbers describing the hours in print and on clock faces, this book presents visually and in print the numbers one to twelve. Each hour the clock strikes, a new animal group arrives. The number of animals arriving directly corresponds with the time of day. Also introduced are terms such as a few, a herd, a bunch, a half-dozen, several, a pack, lots, a flock, a crowd and a dozen.

Suggested Use: Grades Kindergarten to 3

Passing the Peace - A Counting Book for Children (Print-Fiction). Diane Brookes. Penumbra Press (UTP), 1990. unp. ISBN 0-921254-20-2 (\$8.95)

This unique counting book presents the numerals from one to ten in four languages - English, French, Inuit and Inuinnaqtun. The colour images are Inuit figures cut from felt fabric, each figure dressed in a parka. The numerical progression is represented by each figure acquiring a bright red heart, reinforcing the overall theme of friendship among people of different languages and races. Notes on the text include pronunciation hints and explanations of Inuit counting systems.

Suggested Use: Grades Kindergarten to 3

Pattern Block Activities for Junior Grades (Grades 4-6) (Print-Teacher-Reference). Lynda Bowen and Grant Jones. (Active Learning Series). Exclusive Educational Products (BB), 1990. 80 p. BB 1668 (\$30.00)

This Canadian resource features over 125 activities that use pattern blocks. Designed for the Grade 4 to 6 student, these blackline masters cover free exploration, spatial analysis, line and rotational symmetry, flips, slides and turns, tessellations, perimeter, fractions, area, and number patterns. The blackline masters are housed in a three-ring binder and each page is in workcard format.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Pattern Block Activities K-6 Blackline Masters (Print-Teacher-Reference). Barbara Bayha and Katherine Burt. Dale Seymour (ADD), 1985. 82 p. BB 6021 (\$13.35)

This resource is a blackline master collection of pattern block activities for use with elementary students. Included are 36 lessons, each on a separate perforated page. Six topics are covered: Explorations, Patterns, Strategies, Fractions, Symmetry, and Perimeter and Area. Exercises are in three levels of difficulty. Teacher notes are located on the back of each page.

Suggested Use: Grades Kindergarten to 6

Other Uses: Middle Years Math

Pattern Blocks (Print-Teacher-Reference). Lynda Bowen and Grant Jones. (Active Learning Series). Exclusive Educational Products (EEP), 1989. Order No. 0045 (\$29.95)

One hundred and forty pages of blackline masters are included in this three-ring binder resource. Sequential lessons encourage active hands-on exploration of math concepts as students use pattern blocks to try the many activities this binder contains. Topics covered include polygons, patterns, perimeter, area, fractions, symmetry and geometry.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Perplexing Puzzles and Tantalizing Teasers (Print-Non-Fiction). Martin Gardner. Dover Publications Inc. (GNP), 1988. 209 p. ISBN 0-486-25637-5 (\$4.76 pbk.)

This American paperback combines the contents of two previously published works, resulting in 93 brain-teasing problems with mathematical overtones. The collection requires the reader to think logically and develop problem solving skills, all while having fun.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Pigs in Hiding (Print-Fiction). Arlene Dubanevich. Scholastic Inc. (SCH), 1983. unp. ISBN 0-590-42294-4 (\$3.95 pbk.)

This light-hearted story involves a hide-and-seek game with about 40 hot-pink coloured pigs. "It" counts to 100 while the pigs hide all over the house. Bright illustrations, simple dialogue and amusing hiding places will keep primary students interested. Counting, predicting, and creative writing possibilities.

Suggested Use: Grades Kindergarten to 2

Place Value in Decimals (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02473

The emphasis of this program is on the relative size of numbers to the left and right of the

decimal point, including tenths, hundredths and thousandths.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Place Value of Large Numbers (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02487

Special visuals help give viewers a sense of numbers up to and including one million.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Precision and Estimation (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02576

Chip and Duane turn the task of making peanut brittle into a risky business when they proceed without a candy thermometer. They discover the importance of choosing a measuring instrument appropriate to the task at hand. The hosts emphasize that appropriate instruments can measure precisely.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Predicting Your Change (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 13 min. Dup. Order No. V03686

Being shortchanged teaches George and Ingrid the importance of predicting change. When Pinocchio learns to keep the Shady Character from cheating him, he turns into a real boy.

Suggested Use: Grades 3 to 5

Probability: Possible Outcomes (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02492

The first step in calculating the probability of a specific event occurring is to figure out how many possible outcomes a given situation may have. The program looks at the relationship between possible outcome and probability in examples that include both one out of five and two out of five.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

The Problem Solver: Activities for Learning (Print-Teacher-Reference). Judy Goodnow, et al. Creative Publications (BB), 1987. (\$33.00 each) Ordering information:

<i>The Problem Solver 1</i>	BB 6016
<i>The Problem Solver 2</i>	BB 6017
<i>The Problem Solver 3</i>	BB 6018
<i>The Problem Solver 4</i>	BB 6019
<i>The Problem Solver 5</i>	BB 6020

Thought-provoking activities designed specifically for each grade help students develop and practice an organized, logical approach to problem-solving. Annotated teaching plans, ready-to-use discussion questions, and detailed problem solutions make it easy for teachers to introduce and model appropriate problem-solving strategies. Each *Problem Solver* comes in a sturdy three-ring binder and contains reproducible problems for each particular grade. Charts in every binder reference related problems in adjacent grade levels. A few problems have imperial measurements which can be easily converted to metric.

Suggested Use: Grades 1 to 5

Problem Solving: Acting It Out (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03674

Be using everyday objects to set up a mock race course, Elaine, Nisha, Cliff and Roger discover the secret of winning a problem-solving race. Sherlock Holmes shows Watson how to let convenient objects stand for things to solve a problem.

Suggested Use: Grades 3 to 5

Problem Solving: Drawing A Picture (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03679

Naima and Ingrid use a sketch to create a fairer system for selecting a representative to the city tourney. Prince Ferdinand draws a picture to solve a riddle and win Princess Penelope's hand.

Suggested Use: Grades 3 to 5

Problem-Solving Experiences in Mathematics: Teacher Source Book (Print-Teacher-Reference). Randall I. Charles and Frank K. Lester, Jr. Addison-Wesley (ADD), 1985. 120 p. each (\$30.45 each)

Problem-Solving Experiences in Mathematics consists of a book of problem-solving experiences for each grade level from one to eight. The problems are of four varieties: problem-solving skill activities, one-step problems, multiple-step problems, and process problems. Grade 1 contains 80 teacher-directed oral problem-solving experiences grouped

by theme into 20 sets. Grade 2 contains 120 problem-solving experiences including readiness activities. Grades 3 to 8 contain 150 experiences each, divided into 30 clusters of similar problems. Suggestions for use of the problems are given: use one-a-day for a school year, use a problem-of-the-week approach, use for assignments, use for a bulletin-board display or use at math stations. A separate 30-page blackline master package accompanies each book with samples of all four types of problems.

Grade 1 ISBN 20681
Grade 2 ISBN 20682
Grade 3 ISBN 20683
Grade 4 ISBN 20684

Grade 5 ISBN 20685
Grade 6 ISBN 20686
Grade 7 ISBN 20687
Grade 8 ISBN 20688

Suggested Use: Grades 1 to 8

Other Uses: Middle Years Math

Problem Solving Handbook for Grades K-2 Mathematics (Print-Teacher-Reference). (Curriculum Support Series). Province of Manitoba Department of Education (BB), 1983. 115 p. BB 6026 (\$8.25)

Presented in a three-ring binder, this handbook contains information and practical applications which deal with key concepts of problem solving in mathematics. The resource is presented in four sections: background and purpose of handbook, a general overview of problem solving, selected problem activities for each grade, and a bibliography of supplementary resource materials. The handbook provides guidance and gives direction to K-2 teachers in their approach to the teaching of problem solving. Also available are: *Problem Solving Handbook for Grades 3 to 6 Mathematics* described elsewhere in this document and *Problem Solving Handbook for Grades 7, 8, 9 Mathematics*.

Suggested Use: Grades Kindergarten to 2

Problem Solving Handbook for Grades 3-6 Mathematics (Print-Teacher-Reference). (Curriculum Support Series). Province of Manitoba Department of Education (BB), 1984. 231 p. BB 6027 (\$14.00)

This three-ring binder teacher resource contains support material in the area of mathematical problem solving. Divided into four sections, it establishes the background and purpose of the handbook, provides a general overview of problem solving, includes sheets of selected problems for each grade level and provides a list of reference materials on problem solving. This practical handbook is also available for teachers of students younger or older than Grades 3 to 6: *Problem Solving Handbook for Grades K-2 Mathematics* is described elsewhere in this document and the *Problem Solving Handbook for Grades 7, 8, 9 Mathematics* is also available although not evaluated.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Problem Solving: Keep on Trying (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 15 min. Dup. Order No. V03697

Mary and Robert need flexibility and persistence when trying to train a pet and organize a bedroom. The hungry fox tries several ploys before getting the crow to drop a piece of cheese.

Suggested Use: Grades 3 to 5

Problem Solving: Looking for a Pattern (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02483

Geometrical and numerical patterns reinforce the idea of a pattern, finding a pattern helps solve a problem, and viewers are encouraged to find a pattern by looking at data from different perspectives.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Problem Solving: Making a Table (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03683

George helps Ned and Jessica keep track of their progress towards making the swim team. Cinderella's table shows how long she can dance.

Suggested Use: Grades 3 to 5

Problem Solving: Many Ways to Go (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 15 min. Dup. Order No. V03698

Kaylin and Chenetta discover different paths to solving a problem in their dog-walking business. The master is wiser than his best students because he sees that there is seldom only one good way to solve a problem.

Suggested Use: Grades 3 to 5

Problem Solving: Recognizing Necessary Information (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03689

Sorting relevant from irrelevant information in a word problem lets Mrs. Murphy's students track down a prize. St. Georgina fights through a thicket of irrelevancies to rescue a young man in distress.

Suggested Use: Grades 3 to 5

Problem Solving: Using a Guide (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03699

When Andy's locked out, he remembers Eva's way of dealing with a problem she had. Jill suggests that Jack use the "Hey, Wait! - Think-See-Do" problem-solving guide to deal with a leaky bucket.

Suggested Use: Grades 3 to 5

Problem Solving With Math Skills (Filmstrip Kit). Encyclopaedia Britannica (EBP), 1984. 6 - 8 min. each Order No. 14770 (\$232.00)

The kit consists of 6 colour filmstrips, 6 audiocassettes, a package of blackline masters and a teacher's guide. Topics covered are decimals, fractions, numbers, basic operations, and problem solving. The problems presented are realistic, and include strategies such as using models or drawing pictures. There are a few American references.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Professional Standards for Teaching Mathematics (Print-Teacher-Reference). Working Groups of the Commission on Teaching Standards for School Mathematics. National Council of Teachers of Mathematics (NCTM), 1991. 196 p. ISBN 0-87353-307-0 (\$25.00 U.S.)

This resource is a collection of articles that detail American standards for teaching mathematics. The goal of the NCTM committee authoring this document was to establish guidelines for reforming mathematics instruction to prepare students for the 21st century. This scholarly, yet friendly presentation covers evaluation, professional development and support, and development of mathematics teachers and teaching. It is a companion volume to *Curriculum and Evaluation Standards for School Mathematics* described elsewhere in this document.

Suggested Use: Teacher Reference

The Pumpkin Patch (Print-Non-Fiction). Elizabeth King. Dutton Children's Books (MCC), 1990. unpagd ISBN 0-525-44640-0 (\$18.95)

This is a photo-documentary that tells the story of a California pumpkin patch from ground preparation to harvest and jack o'lantern making time. There are numerous opportunities for math concept development including estimating size and weight, ordering, sequencing, counting and discussing shapes. Correlation possibilities with language arts, science and any autumn themes.

Suggested Use: Grades Kindergarten to 3

Reading, Writing, and Rummy (Print-Non-Fiction). Margie Golick. Pembroke Publishers Limited (SCH), 1986. 176 p. ISBN 0-921217-04-8 (\$13.95 pbk.)

The author maintains that playing cards are an excellent vehicle by which children can learn a number of skills in a non-threatening, enjoyable atmosphere. The book has more than a hundred card games which rely on reading and numerical skill development. Problem solving strategies and computational ability may increase as students use playing cards for enjoyment. The fact that many card games involve more than one person leads one to presume that group interaction and cooperation are fostered with card playing. The numerous opportunities for students to practice mathematical concepts and procedures make this a worthwhile purchase.

Suggested Use: Teacher Reference

Other Uses: Middle Years|Sec. Math

Reasonableness of Answers (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02572

After a series of mathematical mishaps, Toby learns to stop and think about a situation before he tries to solve a problem. Children in real-live dilemmas learn to visualize problems, decide how to approach them sensibly and estimate answers.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Reciprocals - Multiplicative Inverse (16 mm). (Elementary Math for Teachers and Students). Davidson Films Inc. (MHP), 1970. 10 min. Order No. MP 5078

Families in a hillbilly community are named according to denominators. There are feuds among different families because they are not considered addable, e.g. $\frac{1}{3} + \frac{1}{2} = ?$ A young lad sets out to solve the problem and does so by using equivalent fractions.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Relating Fractions and Decimals (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03685

For his initiation, David unravels decimal clues with some advice from a canny granny. Romeo Fraction's and Juliet Decimal's families find common ground on a region diagram.

Suggested Use: Grades 3 to 5

Relating Fractions and Decimals (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02477

The idea that a decimal is a fraction whose denominator is a power of ten is extended to

make the point that only such fractions can be written as terminating decimals. The program models using decimals instead of fractions when they are more appropriate.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Reshaping School Mathematics - A Philosophy and Framework for Curriculum (Print-Teacher-Reference). Mathematical Sciences Education Board. National Academy Press (NAP), 1990. 59 p. ISBN 0-309-04187-2 (\$7.95 pbk.)

This teacher reference presents its philosophy for the purpose of reforming the school mathematics program. The aim of the document is to provide impetus to local school boards to encourage the development of a mathematics program that will meet the current needs of all students, and, therefore, the needs of the society in which they live. The resource references the NCTM publication *Curriculum and Evaluation Standards for School Mathematics* described elsewhere in this document. Although theoretical, the resource is both practical and readable, with numerous black and white photographs.

Suggested Use: Teacher Reference

Rigby Read Together Mathematics (Print-Fiction). Rosemary Reuille Irons and Calvin Irons. Rigby Education Inc. (GIN), 1987. 8 p. each

The *Rigby Read Together Mathematics* Series consists of small 8 1/2 x 11 inch booklets that explore the concepts of addition and subtraction using numbers up to 10. All of the books in the series use rhyme, rhythm and repetition. Many of the pages have cut-away parts and novel fold-out portions. Also available are one big book in each set, and a teacher's resource book.

Recommended titles are:

Set 1 - Addition

Birds, Birds, Everywhere
What's in the Cupboard?
Fish for Supper
Penny Penguin's Party

Order No. R73380 (\$19.95 small books)
Order No. R73383 (\$29.95 big book)
Order No. R73387 (\$19.95 teacher's resource)

Set 2 - Subtraction

Ten Silly Sheep
The Wizard Wand
The Queen of Hearts
The Mean Machine

Order No. R73390 (\$19.95 small books)
Order No. R73393 (\$29.95 big book)
Order No. R73397 (\$19.95 teacher's resource)

Sets 3 and 4 feature multiplication and division and were not evaluated.

Suggested Use: Grades Kindergarten to 2

The Right Number of Elephants (Print-Fiction). Jeff Sheppard. Harper & Row (HCP), 1990. unp. ISBN 0-06-025615-X (\$17.50 hdc.)

The "right number of elephants" varies in this reverse order counting book. Beginning with 10 elephants and decreasing by one with each new challenge, the story ends with just one elephant with whom to share a book under a tree. Amusing illustrations add to the fun, and the young reader is left to ponder the question of "how many?" just until the subsequent page.

Suggested Use: Kindergarten to 2

Other Uses: English Language Arts

Roman Numerals (Print-Non-Fiction). David A. Adler. (A Young Math Book). Thomas Y. Crowell (HCP), 1977. 34 p. ISBN 0-690-01302-7 (\$19.89 hdc.)

This resource presents an interesting overview of the origin of Roman numerals and their use to the present day. Hands on activities provide opportunities for students to practice writing and reading Roman numerals.

Suggested Use: Grades 3 to 5

Rosie, The Counting Rabbit (Software). (Explore-a-Story). Collamore Learning Ways, Inc. (HTH), 1987. Order No. 13447-3 (\$125.00)

All Explore-A-Story programs feature five paperback student booklets, a teacher's guide, program disk, student disk and 5 1/4" back-ups for Apple IIe and compatible computers. The programs incorporate reading and writing skills and *Rosie, the Counting Rabbit* also incorporates math. Using a limited vocabulary, students are introduced to numbers and number names and variations to the original story can be written. The program offers varying degrees of difficulty for approximately four grade levels. Students explore the story on computer, count and move objects across the screen, modify the existing screen and edit or write new stories. The program has management features that include the ability to save, print and delete the story on the screen.

Suggested Use: Grades Kindergarten to 3

Sailing Through Story Problems (Software). DLM Teaching Resources (DLM), 1987. ISBN 0-89505-387-X (\$49.95)

This Apple software program presents one-and two-step story problems in a lively pirate theme. Twelve levels of difficulty provide opportunities for students to add, subtract, multiply, and divide, and to locate pertinent information on pictures, maps or tables. Game options include selecting the number of problems, the availability of a calculator and the mastery

level to be achieved. The program consists of two 5 1/4" disks, a user's guide, two blackline masters and a key chart.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

Sampling (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02583

As election day draws near, the editors of the Fairfield Junior High Gazette wish they had some way of accurately reporting who is leading in the race for Fairfield president. Both campaign managers claim to have the more popular candidate, but a closer look at the sampling methods suggests that they may be very wrong. Viewers learn how a small group sample is related to a general population. The concepts of random sampling, percentage of return, and sample bias are presented.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Scale Drawings and Models (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02589

Children help build a scale model of the park in which their grandparents became engaged. In using a scale of 1:100 cm Nella and Joey learn that the relationship of the scale model to the actual object needs to be defined clearly and labelled. They learn the importance of considering available space and the objects they need to depict before making a scale drawing or model and the importance of internal consistency, whether the model is larger or smaller than life.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Sets and Numbers (16 mm). McGraw-Hill Films (MHP), 1968. 12 min. Order No. MP 4817

This 16 mm film helps young children gain an understanding of sets, one-to-one correspondence, cardinal numbers, numerals and counting. The numbers 1 to 10 and the empty set are illustrated using sheep, eggs, pencils and abstract symbols.

Suggested Use: Grades 1 to 5

Seven Little Rabbits (Print-Fiction). John Becker. (A Blue Ribbon Book). Scholastic Inc. (SCH), 1973. unp. ISBN 0-590-41197-7 (\$4.95 pbk.)

Seven little rabbits set out on a walk to visit old friend toad. They never get there because one by one they tire and fall asleep. In a dream the whole story begins to be repeated. Reminiscent of Beatrix Potter's bunnies these anthropomorphic creatures lead the reader

through an amusing tale told in rhyme with a refreshing irregular pattern. Students have the opportunity to count the ordinals in descending order with a predictable, repetitive pattern.

Suggested Use: Grades Kindergarten to 2

Shapes and Things (Print-Non-Fiction). Tana Hoban. Macmillan Publishing Company (MMC), 1970. unp. ISBN 0-02-744060-5 (\$17.95 hdc.)

Tana Hoban's first book features "photograms" which are photographs made without a camera by placing an object directly on photographic paper under darkroom conditions, then exposing it to light. This book is an uncommon visual presentation of common articles found throughout the house. The items are presented for object recognition, art appreciation, and discussion.

Suggested Use: Grades Kindergarten to 2

Shapes, Shapes, Shapes (Print-Non-Fiction). Tana Hoban. Greenwillow Books (MCM), 1986. unp. ISBN 0-688-05832-9 (\$20.95 hdc.)

Reproductions from 35-mm slides, the photographs in this wordless picture book illustrate the many shapes that fill our environment. There are numerous opportunities for discussion and interaction as children locate and identify the dozen or so geometric shapes found in these everyday scenes.

Suggested Use: Grades Kindergarten to 1

Simon and the Snowflakes (Print-Fiction). Gilles Tibo. Tundra Books (UTP), 1988. unp. ISBN 0-88776-218-2 (\$9.95)

Quebec award-winning artist Gilles Tibo has created this fantasy counting book. Simon, a very young boy, attempts to count all of the snowflakes, all of the stars, and all of the lights in the city. While at no time is actual counting performed the concept of infinity is established. The urge to count is resolved by having Simon count his forest friends.

Suggested Use: Grades Kindergarten to 3

Other Uses: English Language Arts

Simplifying the Problem (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02476

Students develop a parallel problem by decreasing the size of numbers or the number of variables, or by taking one step at a time.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

S.I. The Metric System (Filmstrip Kit). Moreland-Latchford (SSC), 1974. 8 - 11 min. each
Order No. ML0041 (\$89.95)

The necessity for having a standardized international (S.I.) measurement system is explained. Examples of measurement concepts are given using length, area, volume and mass examples. Titles in this series: Standardizing Measurement, Measuring Length and Area, Measuring Volume, Measuring Mass. Also available in French.

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

Six Crows (Print-Fiction). Leo Lionni. Alfred A. Knopf Publisher (RAN), 1988. unp.
ISBN 0-394-89572-X (\$17.50 hdc.)

Lionni's brilliant collages illustrate his popular fable in which an owl mediates an agreement between a farmer and six crows over the rights to a wheat field. This would be a good read-aloud for young children and a discussion starter for topics such as problem solving, sharing and cooperating.

Suggested Use: Grades 2 and 3

Other Uses: English Language Arts

Size: The Measure of Things (Print-Non-Fiction). Eric Laithwaite. (Science at Work).
Franklin Watts (GEA), 1987. 32 p. ISBN 0-531-10263-7 (\$16.50 hdc.)

Using 13 topics relating to size, the author explains each concept concisely on a two-page double spread. Experiments and activities, as well as colourful photographs and illustrations help to explain such topics as scale, range, frequency, relativity, and viscosity. Each topic contains sufficient information to stimulate interest and discussion. The subject matter is presented as an accumulation of facts on a particular topic. Table of contents. Glossary.

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

Sleeping Dragons All Around (Print-Fiction). Sheree Fitch. Doubleday Canada Limited (DOU), 1989. unp. ISBN 0-385-25165-3 (\$15.50 hdc.)

The eight colourful "sleeping dragons all around" in this highly imaginative resource must be passed softly, on tiptoe, if the young girl hopes to get to the kitchen for a piece of mocha maple chocolate cake in the middle of the night. One dragon she passes is Pythagorus who is dreaming: "Numbers! Numbers! Infinitesimal! I love numbers, especially decimals!" Rhyme, repetitive words, rich descriptive language and bright, unique illustrations offer strong correlation possibilities with language arts writing and art projects.

Suggested Use: Grades 2 to 4

Other Uses: English Language Arts

The Sneaky Square and 113 Other Math Activities for Kids (Print-Non-Fiction).
Dr. Richard M. Sharp and Dr. Seymour Metzner. TAB Books (MHR), 1990. 134 p.
ISBN 0-8306-3474-6 (\$11.95 pbk.)

This American resource presents over 100 illustrated math puzzles, activities and "brain teasers" covering the topics of speed calculation, logical paradoxes, geometric puzzles, pattern reasoning, and combined number configuration. A wide range of difficulty is presented, and each problem states the level of difficulty. Required materials are stated, and complete explanations of the puzzles are given without becoming overly technical. Imperial measurements may be converted.

Suggested Use: Grades 4 to 8

Other Uses: Middle Years Math

Solve It (Videotape Series). Agency for Instructional Technology (MHP), 1987. 15 min. each.

Titles in this series include:

Drawing and Interpreting Tables and Diagrams; Estimation Strategies for Division; Estimation Strategies for Multiplication; Guess, Check and Revise; The Meaning of Percent; Measuring Angles; Measuring Volume; Multiplication With Fractions and Mixed Numbers; Ordering Decimals; Precision and Estimation; Reasonableness of Answers; Sampling; Scale Drawings and Models; Solving a Simpler Problem; Subtracting Mixed Numbers; Understanding Mean, Median, and Mode; Using Logical Reasoning; Using Mental Computation for Multiplication.

Each title is annotated separately in the bibliography.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Solving a Simpler Problem (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02582

Three boys are overwhelmed by the numbers involved in travel from Earth to Mars (78,000,000 km/300,000 km per sec.). So, they reduce the problem to a simpler one, $780/3$ by dividing out zeroes, and then solve it. Viewers learn three strategies for simplifying problems: using smaller numbers, forming simpler models, and breaking problems into steps.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Solving Pairs of Equations (16 mm). (Elementary Math for Teachers and Students). Davidson Films Inc. (MHP), 1970. 9 min. Order No. MP 5258

This film illustrates how to locate a point by Cartesian graphing telling a story about a boy

who uses this method of graphing to help pirates find a treasure which they had lost. Prior knowledge of graphing and plotting points is necessary.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Solving Story Problems With Sherlock Jones and Proctor Watson (Filmstrip Kit). United Learning (SSC), 1986. Order No. 6005 (\$204.00)

This set of six sound filmstrips demonstrates problem solving techniques with the four basic math processes: addition, subtraction, multiplication and division. Be aware that although some problems include references to pounds and gallons, most measurements will be familiar to students. Four natural breaks occur in each filmstrip to allow for teacher input regarding techniques for solving the problem. The teacher's guide includes lesson plans for the presentation of each filmstrip, suggested enrichment activities and an answer key to the 38 duplicating masters which accompany the kit.

Titles in the series are:

Addition and Subtraction I
Addition and Subtraction II
Multiplication

Division
Multiplication and Division
Review

Suggested Use: Grades 3 to 5

Starting Out With Pattern Blocks, Tangrams, and Interlocking Cubes (Print-Teacher-Reference). Ann Roper. Creative Publications (CPS), 1988. Order No. 34520 (\$22.50 U.S.)

This three-ring binder consists of 138 reproducible activity sheets designed for use with interlocking cubes, blocks and tangram pieces. The collection of manipulative-based activities is intended for use with large or small groups or at individual learning centers. A wide variety of activities is presented in order of increasing difficulty.

Suggested Use: Grades Kindergarten to 2

Statistics: Analyzing Data (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02495

In addition to showing children analyzing their own data, this program emphasizes the importance of asking questions to help determine the validity of statistical information - questions about the source of the information, about the size of the sample and about how accurately the data are portrayed.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Statistics: Collecting Data (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02490

How data can help people make decisions and why it is important to think carefully about how to collect them are emphasized. The program considers determining what data are needed and deciding about the sample, the method of collecting data and the destination and allocation of tasks.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Statistics: Sampling (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02481

Students decide when to query an entire population, when to sample, and what to consider when selecting a sample.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Story Problems With Pattern Blocks (Print-Teacher-Reference). Judy Goodnow and Ann Roper. Creative Publications (BB), 1987. Order No. 53581 (\$26.00)

Story Problems With Pattern Blocks is three books bound in a three-ring binder. Each book comprises 44 pages of blackline masters. Within each book, the activities are presented in sequences, with each sequence reinforcing a single math skill and related vocabulary. Activities are designed for primary students, particularly Grades 1 and 2. The story problems examine the concepts of first, last, top, bottom, left, right, more, less, inside, outside and equal. Using pattern blocks while doing the activities provides students with hands-on opportunities and these activities may bridge the gap between manipulatives and abstract concepts.

Suggested Use: Grades Kindergarten to 3

Subtracting Mixed Numbers (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02584

On a game show, sixth grade contestants subtract mixed numbers. The show's host explains the steps involved: making denominators the same, regrouping and subtracting only the numerators. When the contestants make common mistakes, the hosts demonstrate what went wrong.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Subtraction - Revised (Videotape). (Beginning Mathematics). Magic Lantern Films (MHP), 1987. 14 min. Dup. Order No. V03006

When a cashier makes change, viewers see how subtraction is related to addition. Other experiences reinforce ideas about subtraction: it is the opposite of addition, subtraction does not have the commutative or associative property, the role of zero in subtraction, place value, expanded numbers and regrouping. The program clearly shows how to subtract one two-digit number from another.

Suggested Use: Grades 1 to 5

Survival Math (Software). Sunburst (SUN), 1982. Order No. 096302 (\$87.00)

In this Apple software program students learn to handle numbers in a wide variety of realistic situations including games, money, sports, hobbies and entertainment. The modules vary in difficulty as well as skills and knowledge, and the user must be able to estimate, predict outcomes, and accurately calculate correct answers. The program consists of two copies of the 5 1/4" diskette and a teacher's manual in three-ring binder format. While the program is by no means a complete "survival math" package, it is one of many resources which have a place preparing students for the real-world problem-solving environment.

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

Take Shape 2nd ed. (Print-Teacher-Reference). Marion Cross and Monica Stevenson. (Active Learning Series). Exclusive Educational Products (EEP), 1990. 143 p. each. Order No. 0037 (\$37.95)

Take Shape is a three-part series developed for four overlapping grade levels, Kindergarten to Grade 3. The subsections are titled Solids, Faces, and Lines and Points. All three levels provide opportunities for students to work with real objects and events in order to later understand geometric ideas and concepts in a meaningful manner. By experimentation, manipulation and exploration, students are led to discover the properties of spaces and shapes. Evaluation strategies including cards designed for various assessment opportunities, and ideas for integration with other subject areas are offered. The reproducible blackline masters, or "activity cards", are suitable for use in math stations or for group assignments. The activities have precise instructions printed in large, bold print. The resource gives helpful hints for the teacher's use in implementing and managing activity-based learning.

Suggested Use: Grades Kindergarten to 3

Teaching Mental Math (Videotape). (Staff Development). Addison-Wesley (ADD), 1988. 25 min. Order No. 22324 (\$300.10)

This two-part resource introduces and defines mental math, distinguishing it from estimation which does not require precise answers. The videotape allows adaptable inservice for

teachers. Four specific techniques of teaching mental math are described and demonstrated with examples. The Leader's Guide includes transparencies and blackline masters of activities. The resource is designed as an aid for a staff development workshop.

Suggested Use: Teacher Reference

A Teaching Strategy for Problem Solving (Videotape). (Staff Development). Addison-Wesley (ADD), 1987. 30 min. Order No. 22322 (\$300.10)

This package consists of a 30-minute videotape and a Leader's Guide in three-ring binder format. The videotape describes in lecture style teaching strategies for problem solving. Brief clips show teachers working with students. The value of the video is enhanced by the accompanying Leader's Guide with optional activities, blackline masters and transparencies. This package could be shared in school divisions and used for professional development at staff meetings, inservice or by individual teachers.

Suggested Use: Teacher Reference

Teaching with Calculators (Videotape). (Staff Development). Addison-Wesley (ADD), 1987. 20 min. Order No. 22325 (\$300.10)

The videotape has three parts: the history of calculators, how they work, and how they can be used effectively in the classroom. The calculator is explored as an instructional device. Its potential as a tool to enhance the development of mathematical concepts, critical and creative thinking and problem-solving skills, is emphasized. The Leader's Guide includes blackline masters, overhead transparencies and suggested activities. Many of the activities have been adapted from the Addison-Wesley calculator supplement, *Mathematics with Calculators: Resources for Teachers* available for each grade level from K to 8.

Suggested Use: Teacher Reference

Teasers by Tobbs With Integers (Software). Wings for Learning Inc. Sunburst (WINGS), 1989. Order No. 179102 (\$87.00)

Designed for the Apple II Series and written in Applesoft, this software provides drill and practice, instructional support via games, and practice in the area of problem solving. A follow-up to its predecessor *Teasers by Tobbs* this program allows practice on all four operations on integers from -99 to 99. As well, this program allows greater flexibility in choosing problems to be solved. The program allows a focus on either process or skills and a calculator/scratch pad is built into the program. At the highest level, multiple correct answers are accepted. The package consists of a three-ring binder, teacher's guide and one 5 1/4" diskette with back-up.

Suggested Use: Grades 5 to 12

Other Uses: Middle Years Math|Secondary Math

Teasers by Tobbs With Whole Numbers (Software). Wings for Learning Inc (WINGS), 1989. Order No. 013302 (\$87.00)

Teasers by Tobbs With Whole Numbers is an update of previous editions which allows the teacher or student more control over the types of problems and manner in which to solve them. Tobbs, an animated character, presents addition or multiplication problems on a grid. Six levels of difficulty provide a wide ability range from simple drill to complex problem solving strategies. The package includes one 5 1/4" diskette with back-up and one teacher guide. Apple or Apple IIGS.

Suggested Use: Grades 3 to 5

Techniques of Problem Solving (Activity Cards). Carol Greenes, et al. Dale Seymour Publications (ADD), 1984.

Techniques of Problem Solving (T.O.P.S.) is a set of activity cards designed to complement existing math programs by providing supplemental problem-solving exercises. There are four Canadian T.O.P.S. Problem Decks, one for each of Grades 3, 4, 5 and 6. Each set contains 200 cards with problem solving questions. The problems use skills and concepts drawn from measurement, fractions, geometry and numeration strands. All sets are colour coded to designate three levels of difficulty.

Gr. 3	Problem Deck A	Order No. 68174	\$52.50
Gr. 4	Problem Deck B	Order No. 68175	\$52.50
Gr. 5	Problem Deck C	Order No. 68176	\$52.50
Gr. 6	Problem Deck D	Order No. 68177	\$52.50

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Ted Is My Friend: A Mathematics Activity Book (Print-Non-Fiction). Betty Coombs and Lalie Harcourt. Addison-Wesley (ADD), 1987. 94 p. ISBN 0-201-19115-6 (\$7.15)

This full-colour activity book is a supplement to the *Explorations 1* series and includes numerous language experience activities with a mathematical focus. Cut and paste activities predominate, as well as numerous game boards, charts, workmats and completion pages. This workbook is designed to be used as a reinforcement to concepts and skills already learned. "Ted" is a friendly troll who leads the students to mathematical discoveries throughout the workbook. A handpuppet of Ted is also available.

Suggested Use: Grade 1

Telling Time (Audio Tutorial Kit). Encyclopaedia Britannica (EBP), 1970. 5 - 10 min. each Order No. 6610 (\$142.00)

The kit consists of four sound cassettes, four colour filmstrips, 15 plastic airplanes, four

spiralbound booklets, worksheets and four cardboard clockfaces. Described as an audio tutorial and designed to be used by individual students in a work-station situation, this package teaches telling time in four sequential lessons. Students listen to instructions on the tape and perform various tasks using the booklet and worksheets. The filmstrips provide whole class review. The earliest lessons have the student zoom a plastic airplane around a clockface landing before and after given numbers. Subsequent lessons teach long and short hands pointing to the hour and pointing at five minute intervals before and after the hour. Finally, the child learns five minute intervals plus individual minutes, such as 3:27. Many different clockfaces are presented, some with no numbers at all. No digital clocks are presented. The variance of difficulty in the four lessons suggest that the kit could be used over different grade levels, or by classrooms with students with different abilities. The lessons move along quickly and students would need to be paying close attention in order not to lose their place.

Suggested Use: Grades Kindergarten to 3

Ten for Dinner (Big Book). Jo Ellen Bogart. Scholastic (SCH), 1989. 20 p. ISBN 0-590-73173-4 (\$29.95 Big Book)

The big book format is perfect for this birthday party counting book. Ten different friends arrive at various times, bring a variety of gifts, and eat varying combinations of food. Graphing these activities would be a natural activity! Canadian artist Carlos Freire makes each character come alive and children will enjoy the individual manner in which he has depicted each guest.

Suggested Use: Grades Kindergarten to 2

Other Uses: English Language Arts

Ten Little Animals (Print-Fiction). Laura Janes Coats. Macmillan Publishing Company (MMC), 1990. unp. ISBN 0-02-719054-4 (\$16.75 hdc.)

A rowdy, fun version of an old time favourite, this book presents the opportunity to count downwards from 10 to 1 as one by one the animals jump from the bed and bump their heads. Illustrations clearly portray the rollicking rhyme and manage to convey the feelings of the boy and of his animals. A pictorial graph completes the book which offers many ideas for language arts correlation.

Suggested Use: Grades Kindergarten to 2

Ten Little Ducks (Print-Fiction). Franklin Hammond. Douglas & McIntyre (DGL), 1987. unp. ISBN 0-88899-052-9 (\$9.95 hdc.)

Ten little ducks frolic throughout the day. Colourful language is incorporated into each activity of the ducks. Bright illustrations become larger and engulf more and more of each

double-page spread. Numbers are presented both as words and as numerals. A cheerful counting book for young children.

Suggested Use: Grades Kindergarten to 2

Ten, Nine, Eight (Print-Fiction). Molly Bang. Greenwillow Books (MCM), 1983. unp. ISBN 0-688-00906-9 (\$19.95 hdc.) ISBN 688-104800 (\$5.95 pbk.)

Numbers from 10 to 1 are counted downward as part of a father's lullaby to his little daughter. A variety of objects in her room become part of the lullaby making counting a real experience. Rhyming descriptive passages such as "small toes all washed and warm" add to the beauty of this Caldecott Honour Book.

Also available in Big Book format from Scholastic Canada ISBN 0-590-73313-3 (\$29.95).

Suggested Use: Grades Kindergarten to 2

Ten Potatoes in a Pot and Other Counting Rhymes (Print-Fiction). Michael Jay Katz. Harper & Row (HCP), 1990. unp. ISBN 0-06-023106-8 (\$16.95 hdc.)

A collection of 23 old counting rhymes illustrated in traditional children's picture book style, and arranged in numerical order, this book is a good read-aloud for pre-school and primary children. Each illustration is outlined with a black border and topped with a silhouette and numeral for more counting practice. Both traditional (Baa, baa, black sheep, One, two-buckle my shoe) and new (One bun is overdone) rhymes are featured.

Suggested Use: Grades Kindergarten to 1

The Thinker's Toolbox - A Practical and Easy Approach to Creative Thinking (Print-Non-Fiction). Pamela Thornburg and David Thornburg. Dale Seymour Publications (DSP), 1989. 138 p. ISBN 0-86651-467-8 (\$13.95 U.S.)

The purpose of this book is to teach divergent thinking skills. To do so the author has developed 16 key words, "tools", or specific techniques of divergent thinking with which students discover, explore and work. Two-thirds of the book is devoted to these applications. The teacher's overview for each tool gives a description, an example of its use, and several applications for which the tool is appropriate. A blackline master for each tool provides practice for groups in brainstorming techniques. Part II consists of approximately 60 challenging problems that require divergent thinking. Closure is encouraged but not always necessary for each problem. A note of caution: Imperial measurements may have to be adapted.

Suggested Use: Grades 3 to 8

Other Uses: Middle Years Math

This Book Is About Time (Print-Non-Fiction). Marilyn Burns. Little, Brown and Company (LIT), 1978. 128 p. ISBN 0-316-11750-1 (\$11.95 pbk.)

Literally a pot-pourri of material on the subject of time. The resource is jam-packed with short and long articles on this "timely" topic. Historical chapters discuss the emergence of time zones around the world, the scientific basis of calendars, and the invention of time pieces from sundials to digital electronic watches. Many examples of nature's timekeeping ability are described in concise articles such as the Capistrano swallows phenomenon, tides, eclipses and other examples of the various internal rhythms of living organisms. Other interesting articles include jet lag, reportings of interesting time-related experiments, and the biorhythms of human beings - all illustrated with black and white sketches. While an index would have made the material more readily accessible, the variety of articles and the interest they generate will far outweigh complaints about its format and American content.

Suggested Use: Grades 3 to 6

Other Uses: Middle Years Math

Three Bears Family Fun Set (Activity Kit). Mary Sinker. Learning Resources (EEP), 1990. Order No. 3542B (\$24.95)

The kit consists of 48 plastic bears in assorted shapes and colours, one number die, one 16 x 22" laminated play mat and one activity book with story pages and reproducible work sheets. The activities involve an adult reading one of 12 stories to a group of children who act out the story on the play mat. Guided questions emphasize language concepts such as colours, position words and alphabet sounds, and number concepts such as time, size, estimation, counting and sequencing. The set is easy for children to work with as most students are familiar with mama, papa and baby bear. The pieces are durable, colourful and inviting.

Suggested Use: Grades Kindergarten to 2

Time (Print-Non-Fiction). John Williams. (Starting Technology). Wayland Publishers Ltd. (NEL), 1990. 32 p. ISBN 1-85210-922-X (\$19.50 hdc.)

Scores of creative ideas explore the concept of time for elementary students. Topics covered are clocks of all types: water, candle, alarm and digital, as well as pendulums, timers, and sundials. Exceptionally clear photographs and sketches in full colour contribute to make this resource interesting, useable and attractive. An added bonus are notes for parents and teachers, the brief glossary and good index.

Suggested Use: Grades 2 to 5

Time, Lines and Events - Revised (16 mm). Dimension Films (MHP), 1980. 15 min. Order No. MP 8296

This film is a visualization of time as a system for measuring events. It shows concepts of

sequences and duration, and how to construct timelines. As well, it gives a sense of the vastness of geological time. The film is slightly shortened from the 1965 version.

Suggested Use: Grades 3 to 9

Other Uses: Middle Years Math

Time to... (Print-Non-Fiction). Bruce McMillan. Lothrop, Lee and Shepard Books (MCM), 1989. ISBN 0-688-0855-4 (\$19.95 hdc.)

This is an hour-by-hour account of a kindergarten boy's day featuring full-colour photographs. Through clearly sequenced activities the passage of time is demonstrated. The measurement of time is shown on the face of a traditional clock, on a digital display and in the brief text which accompanies the photographs. The measurement of time is by the full hour, and the terms A.M., P.M., noon, in the morning, in the afternoon, in the evening and at night are used.

Suggested Use: Grades Kindergarten to 3

Together We Learn: Cooperative Small Group Learning (Print-Teacher-Reference/Videotape). Judy Clarke, et al. Prentice-Hall (BB/MHP), 1990. 23 min. video, available for duplication from MHP. Dup. Order No. V02705. BB 6119 (\$23.65 pbk., handbook)

This is an indispensable handbook for teachers incorporating Common Essential Learnings in the classroom. This Canadian resource discusses reasons for using group work, group dynamics, creating and sustaining group work, and evaluating the process and product. An interesting, jargon-free, practical treatment. Table of Contents.

The video has a good balance of males and females, varying age groups, and varying races. It features conversations with teachers regarding why and how they use the cooperative learning approach. A useful instructional strategy resource for all teachers. Also listed for Elementary Science and English Language Arts.

Suggested Use: Teacher Reference

Other Uses: English Language Arts|Science

Too Hot to Hoot - Funny Palindrome Riddles (Print-Non-Fiction). Marvin Terban. Clarion Books (ALL), 1985. 64 p. ISBN 0-89919-319-6 (\$20.95 hdc.) ISBN 0-89919-320-X (\$8.95 pbk.)

This book presents a collection of palindrome riddles. Palindromes are words or phrases that are spelled the same way backwards or forwards, such as the title of this book. One chapter contains palindromic numbers such as 1991 and 2002. A few palindrome number puzzles are given, some of which require the use of a calculator. The book is illustrated with cartoon-like sketches.

Suggested Use: Grades 4 to 5

Towards a Good Beginning: Teaching Early Childhood Mathematics (Print-Teacher-Reference). Grace M. Burton. Addison-Wesley (ADD), 1985. 257 p. ISBN 0-201-20086-4 (\$33.75)

This professional text provides background information for teachers in understanding the characteristics of preschool and primary age children and in understanding their unique early childhood mathematical needs. It offers suggestions for teaching various mathematical concepts and operations. Other chapters include coverage of special needs students, assessment techniques, and suggestions regarding bridging the gap between the concrete and the symbolic. The book refers to NCTM standards and would be a handy reference for any early childhood teacher, but especially appropriate for the beginning teacher.

Suggested Use: Teacher Reference

A Treeful of Pigs (Print-Fiction). Arnold Lobel. (A Blue Ribbon Book) Scholastic (SCH), 1979. unp. ISBN 0-590-41280-9 (\$4.95)

A Slavic farmer's wife surprises her husband and eventually tricks him into doing his share of the pig-raising. There are many opportunities to count pretty pink piglets in this amusing "pig-tale." Detailed, colourful illustrations including traditional Slavic costumes are featured.

Suggested Use: Grades Kindergarten to 2

Turn on the Human Calculator in You! (Audiocassettes). Scott Flansburg. Motivation Through Mathematics (CSB), 1991. (\$81.25)

Self-esteem and self-confidence are taught in this program consisting of four 30-minute audiocassettes and one guide book. Nine strategies are introduced and developed further on audiocassette. The aim of the program is to reach students, teachers and parents who experience "mathphobia" or any form of math anxiety. The author's confidence-building techniques empower students to become successful in mathematical activities.

Suggested Use: Grades 4 to 12

Other Uses: Middle Years Math|Secondary Math

Under the Sun and Over the Moon (Print-Fiction). Kevin Crossley-Holland. Doubleday Canada Limited (DOU), 1989. unp. ISBN 0-385-25215-3 (\$17.95 hdc.)

This beautifully illustrated British book develops number concepts and counting skills from 1 to 10 in an unusual manner. A young boy sets out to visit 10 secret gardens on the grounds of a ruined country mansion. Each garden features one number and the illustrations contain all of the items mentioned in the three rhyming couplets opposite the illustration. The verses are framed above and below with a sun and a moon, literally "under the sun and over the moon."

Exotic, wonderful items are to be found: toucans, opals, snails, fountains and mazes. The book concludes with a summary, a puzzle and a very colourful graph.

Suggested Use: Grades 3 and 4

Other Uses: English Language Arts

Understanding Early Years Mathematics (Print-Non-Fiction). Derek Haylock and Anne Cockburn. Paul Chapman Publishing Ltd. (IRW), 1989. 127 p. ISBN 1-85396-074-8 (\$18.64 pbk.)

This British teacher reference provides background material for the primary mathematics teacher. The resource examines fundamental mathematical ideas such as number, addition, subtraction, multiplication, division, transformation, equivalence, measurement, and concepts associated with shape and space. Particular attention is given to the use of symbols and the importance of linking symbols, concrete experiences, language and pictures. Each chapter concludes with suggestions for activities with children.

Suggested Use: Grades Kindergarten to 3

Understanding Mathematics Fives (Print-Non-Fiction). Avelyn Davidson. Shortland Publications (GIN), 1984. Order No. 567231 (\$44.95 Teacher's Resource Book) Order No. 567232 (\$22.95 Blackline Masters)

This mathematics support program from New Zealand develops simple concepts for the kindergarten age child. It consists of three parts: teacher's resource book, blackline masters and a set of three rhyming books. The teacher's resource book is sequential and has sample lessons for each of several concepts: size, shape, classification, ordering, counting, patterning, measurement and numbers. Numerous manipulatives, including environmental materials, are suggested for the program. The blackline masters, in a 96 page workbook format, contains paper and pencil activities and evaluation charts. The rhyming books are attractively illustrated and contain rhymes and poems rich in mathematical vocabulary. The titles and ordering information are:

How Many? Order No. 567236 Big Book \$27.95, Order No. 567233 \$8.50 pbk.

What's the Time Mr. Wolf? Order No. 567237 Big Book \$27.95, Order No. 567234 \$8.50 pbk.

How Big is Big? Order No. 567238 Big Book \$27.95, Order No. 567235 \$8.50 pbk.

Also available, though not evaluated, are: *Understanding Mathematics Sixes* and *Understanding Mathematics Sevens*.

Suggested Use: Grades Kindergarten

Understanding Mean, Median, and Mode (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02577

Park officials, claiming that the average age of park users is over 30, plan to convert a soccer field to a golf driving range. But the neighborhood children know that more children than adults use the park. Students learn to select and apply the most appropriate averaging methods (mean, median and mode) to their problems.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Understanding Place Value (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03676

Kaylin learns the hard way how the place value of a number changes when another number is put to its right - she ends up with too many cookies and too many ads. Zero teaches Numberville about place value.

Suggested Use: Grades 3 to 5

Understanding Remainders (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 13 min. Dup. Order No. V03688

Mary finds that what she and her friends do with remainders depends on the situation. Little Boy Blue meets the big bad wolf and learns to think about remainders before sounding the alarm.

Suggested Use: Grades 3 to 5

Understanding the Placement of the Decimal (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02493

After reviewing the need to align decimal points in addition or subtraction, the program focuses on knowing where to put them in the answer to a multiplication problem.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Up to Ten and Down Again (Print-Fiction). Lisa Campbell Ernst. Lothrop, Lee & Shepard (MCM), 1986. unp. ISBN 0-688-04541-3 (\$19.95 hdc.)

What's more fun than a picnic? Two families arrive at a picnic site where 1 duck paddles in a pond. They proceed to unload from 2 cars - 3 dogs, 4 boys, 5 girls, 6 balls, 7 boats, 8 picnic baskets and 9 hats. 10 clouds blow in, and the process is reversed as the raindrops begin. This wordless picture book has illustrations in the form of snapshots attached to

album pages. Smaller photographs show close-ups of the item to be counted. The resource concludes with a picture graph of the 10 items counted "up to ten and down again."

Suggested Use: Grades Kindergarten to 2

Using Bar Graphs (Videotape). (It Figures). Agency for Instructional Technology (MHP), 14 min. Dup. Order No. V03687

A well-labelled bar graph helps Linda's friends prove the need for a crosswalk after her bike accident. The King and Queen of Hearts graph tart consumption - and catch the tart thief.

Suggested Use: Grades 3 to 5

Using Diagrams and Models (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02485

Flow charts, models, assembly plans and blueprints simplify, clarify, abstract or make concrete.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using Division (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03682

Knowing when to use division helps Cliff, Roger and their classmates to a successful garage sale. The old woman divides her children into three shoes.

Suggested Use: Grades 3 to 5

Using Estimation (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03675

Houston takes his rabbit to a fair and learns that estimation helps budget time and money, and that rounding makes estimation easier. Simple Simon knows he can buy all the pieman's pies because he estimated beforehand.

Suggested Use: Grades 3 to 5

Using Fractions (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03678

Cliff and his cabin-mates at camp use their knowledge that fractions are made up of

equal-sized parts to divide space, candy, and a cake. Each time Humpty Dumpty falls he breaks into equal-sized pieces...halves, fourths, and eighths.

Suggested Use: Grades 3 to 5

Using Graphs (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02491

How to choose the right kind of graph to convey a particular point is the focus of this program which compares situations in which the different characteristics of bar, circle or line graphs are most appropriate.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using Logical Reasoning (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02588

When Craig forgets to attach cards to four wrapped presents, he and Jennifer try to figure out which gift goes to which relative. By laying out the cards and the wrapped gifts to form an array and then using colour, size, and sound as clues, they deduce who should get which package.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using Maps (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02497

This program focuses on reading and interpreting a map that someone else has prepared. After noting such points as the region covered, the directions, coordinates, scale and the key to symbols, students use maps to find a particular location to determine the distance between two points and to plan a route.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using Mental Computation (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 12 min. Dup. Order No. V03681

Naima and Kevin use different methods of mental addition to keep track of their sales. The genie shows Aladdin two ways to figure in his head how much treasure he has.

Suggested Use: Grades 3 to 5

Using Mental Computation for Addition (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02472

Students use the left-right method and the plus-minus method of adding two-digit numbers for specific situations.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using Mental Computation for Multiplication (Videotape). (Solve It). Agency for Instructional Technology (MHP), 1987. 15 min. Dup. Order No. V02573

When modern technology fails them, Jimmy and Claude must use mental computation to ring up purchases in their uncle's hardware store. The children learn "round and adjust" and "mental breakdown" to help them mentally compute totals.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using Mental Computation for Subtraction (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02486

The left-right strategy introduced for mental addition is applied to subtraction.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using Multiplication and Addition (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 15 min. Dup. Order No. V03684

The Fourth Street Regulars learn from their candy sale and from playing miniature golf that multiplication can help with some addition problems. Alice uses both multiplication and addition in the Red and White Queens' problem.

Suggested Use: Grades 3 to 5

Using Probability (Videotape). (It Figures). Agency for Instructional Technology (MHP), 1986. 14 min. Dup. Order No. V03695

Drawing straws, flipping a coin, and in a pizza contest, Andy and his friends learn it is useful to know how to determine the "likelihood" of an event. Lancelot uses probability to discover the King's trick.

Suggested Use: Grades 3 to 5

Using Tables (Videotape). (Math Works). Agency for Instructional Technology (MHP), 1985. 14 min. Dup. Order No. V02479

With different kinds of tables, the program reviews what a table contains and models both how to read a table to find needed information and how to make a table.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Using the Metric System: A Unit of Study (Filmstrip Kit). (Situational Math). United Learning, Inc. (SSC), 1989. Order No. 6310 (\$174.00)

This set of six filmstrips with audiocassettes presents problem-solving techniques and computer skills based on the metric unit of measures. Newly revised, it introduces the metre, gram, and litre as well as the prefixes deci, centi, milli, and deca, hecto, kilo and metric ton. The teacher's guide provides instructional data, student problems and answer keys. A two-sided poster is included for easy reference when learning the metric system. Blackline masters accompany each filmstrip. Titles in the series are:

Metre and Prefixes Deci, Centi, and Milli
Metre and Prefixes Kilo, Deca, and Hecto
Gram and Prefixes Deci, Centi, and Milli
Gram and Prefixes Deca, Hecto, and Metric Ton
Liter and Prefixes Deci, Centi, and Milli
Liter and Prefixes Deca, Hecto, and Kilo

Suggested Use: Grades 5 to 8

Other Uses: Middle Years Math

We Use the Number Line (16 mm). Coronet Instructional Films (MHP), 1970. 10 min. Order No. MP 5026

An artist animates a number line and shows how it pictures 'how many' common objects from everyday life. Addition and subtraction problems are handled with real objects, then checked out on the number line.

Suggested Use: Grades 1 to 3

Weight (Print-Non-Fiction). Jacqueline Dineen. (Starting Maths). Wayland (NEL), 1990. 32 p. ISBN 1-85210-952-1 (\$12.71)

This British resource contains over 25 full colour photographs and illustrations to help explain the concept of weight. Rhetorical questions guide primary students in their discovery of weight-related activities. Other books in the series are: *Shapes*, *Measuring*, *Numbers*, *Adding*, and *Taking Way*, all designed for early education students.

Suggested Use: Grades Kindergarten to 3

The Weird Number (16 mm). (Exploring Mathematics). Xerox Films (MHP), 1971. 13 min. Order No. MP 5229

This animated film tells the story of the visit of the first fraction to a community of whole numbers. The 'weird' number, two-thirds, steals a piece of cake and then leads the people of the town on a merry chase. He escapes and four-sixths assumes his 'disguise' to explain the system of rational numbers and the concept of equivalent fractions.

Suggested Use: Grades 4 to 6

Other Uses: Middle Years Math

What Are Fractions and How Are They Used? - Revised (Videotape). (Beginning Mathematics). Magic Lantern Films (MHP), 1987. 13 min. Dup. Order No. V03011

This program demonstrates that fractions are used in different ways: to describe parts of a whole amount in measurement, to compare one thing with another in ratios, and to represent division. All these ideas are presented through the use of graphics and illustrated with events that children might naturally encounter in their daily lives.

Suggested Use: Grades 1 to 5

What Did You Eat Today? (Big Book). David Drew. Nelson (NEL), 1989. ISBN 0-17-007290-8 (\$29.97)

This big book uses the diets of zoo animals as its focus. Each animal states the food that it eats in a day. For example, the chimpanzee has 5 peanuts, 1 macadamia nut, 3 sticks of celery, 6 shallots, 2 spinach leaves, 2 carrots, 2 cabbage leaves, 1 coconut, 12 grapes and 20 currants. Each item is pictured, many are graphed, all are bright and colourful. The animals used are elephants, iguanas, sharks, seals, boa constrictors, bears, tortoises, tigers, koala bears and finally the diet of the visitor to the zoo. There are wonderful possibilities for creating graphs and tables while using this book, and opportunities for counting, estimating and ordering.

Suggested Use: Grades Kindergarten to 2

What Do You Do With Attribute Blocks? Level K-8 (Print-Teacher-Reference).

J. Hulland and J. McLean. (Active Learning Series). Exclusive Educational Products (BB), 1991. 120 p. BB 829 (\$30.00)

Several levels of difficulty are sequenced in one binder of activities that provides students with opportunities and experiences with attribute blocks. The activities are in the form of workcards on blackline masters which may be reproduced. The three-ring binder format is particularly useful, and teacher notes, strands, and evaluation guides are included.

Suggested Use: Grades Kindergarten to 8

Other Uses: Middle Years Math

What Is Measurement? Standards (16 mm). (The Metric System). Moreland-Latchford (MHP), 1974. 11 min. Order No. MP 5445

A brief and concise historical background of measurements of the western world, from the arbitrary units to the consistent and logical International Metric System, is presented in this film. It describes how the inch, foot, yard, rod, furlong, chain and fathom were developed. It includes biblical references to span and cubit. The film explains why standards were required to prevent confusion and explains why standard measurements are essential today.

Suggested Use: Grades 4 to 9

Other Uses: Middle Years Math

Who Wants One? (Print-Fiction). Mary Serfozo. Margaret K. McElderry Books (MMC), 1989. unp. ISBN 0-689-50474-8 (\$17.95 hdc.)

Using rhyming text, a big sister stands beside her magician's box conjuring up two, three, four items for her little brother. Nothing will change his mind, he only wants one. Only on the final page do we find the one item the brother has been waiting for. The repetitive words and beautiful illustrations, and the inclusion of clever number patterns up to ten make this counting book a worthwhile purchase.

Suggested Use: Grades 1 to 2

Why Go Metric (Videotape). (The Metric System). SaskMedia (MHP), 1977. 16 min. Dup. Order No. V00825

This program discusses the background to the metric system and rationale for change, the benefits and advantages of the metric system, the time line for change and a survey of metric reference materials.

Suggested Use: Teacher Reference

The Wildlife 1 2 3 : A Nature Counting Book (Print-Non-Fiction). Jan Thornhill. (An Owl Book). Greeny de Pencier (EBP), 1989. 29 p. ISBN 0-920775-39-X (\$16.95 hdc.)

This vividly coloured counting book details wildlife in natural habitats around the world. The Canadian award winning artist has presented animals in groups from 1 to 20, and 25, 50, 100 and 1000. Each form of wildlife is illustrated separately by page, and found again in the unique border which surrounds each illustration - a double counting exercise per page. Bold numerals and number words complete each page - 3 Three Starfish. Good nature notes provide background information for parents and teachers. Also listed for Elementary Science and English Language Arts.

Suggested Use: Grades Kindergarten to 2

Other Uses: English Language Arts|Science

Windows on Mathematics: Worktime Activities for Young Children

(Print-Teacher-Reference). Joan Westley, Micaelia Randolph and Betsy Franco. Creative Publications (ADD), 1987. 64 p. each BB 6369 (\$125.00 complete set or \$11.45 each)

This is a set of 12 coilbound books plus teacher's guide. Each book contains 28 investigations or windows, to be used with small groups in one math period. Each activity description notes objectives, materials needed, start up, guiding the activity, and additional activities to stretch thinking. Black and white illustrations are included. The teacher's guide has reproducible lesson aids and a materials kit is also available. The suggested sequence of use is as follows:

1. *Matching* BB 831

Children encounter many opportunities to practice matching through one-to-one correspondence, examining logical pairs, classifying and examining equivalent sets. With the help of suggestions in this resource they use pictorial and concrete objects to develop matching abilities.

2. *Shapes* BB 832

Children look at circles, squares, rectangles and triangles. The activities in this resource encourage students to recognize these four basic shapes through songs, movement, games, drawing and by handling manipulatives. Geoboard activities are introduced.

3. *Counting and Numbers* BB 833

Children investigate counting activities through song, rhyme and rhythmic counting activities. They match, guess, count forward and backward, and look at more than and less than.

4. *Comparing* BB 834

Children experience opportunities to compare objects according to differing attributes such as length, width, height, speed, weight, temperature and so on. They practice the vocabulary of comparison and illustrate comparative terms. Objects are sequenced according to size, sound and position.

5. *Classifying and Graphing* BB 835

Children categorize by size, shape and type looking for likenesses and differences. They sort into two and three categories and then record their findings on picture graphs, representational graphs and symbolic graphs.

6. *Patterns* BB 836

Children look and listen for patterns all around, and explore symmetry in nature. They are invited to make, predict or change linear patterns, border patterns, matrix patterns and so on. Patterning activities are varied and numerous.

7. *Reading and Writing Numerals* BB 837

Number symbols are introduced by matching, recognition activities, reading numbers, tracing and writing. A variety of activities are presented in a sequential fashion with interesting exercises, games and projects all clearly illustrated.

8. *Number Concepts, 0 - 9* BB 838

Children experience set building, more than and less than, ordering numbers. They chart, graph and record their work with cut-and-paste activities. Several language arts correlations are suggested.

9. *Number Concepts, 10 - 99* BB 839

Children are given the opportunity to use tens to find sums to 18, to learn and practice counting by tens. They are introduced to place value and activities are provided to name and write numbers to 99.

10. *Adding and Subtracting* BB 840

Children experience very basic activities relating to addition and subtraction with both concrete and abstract examples. They are introduced to the plus, minus and equal signs, and learn to write number sentences up to ten.

11. *Measuring* BB 841

Children are presented with many activities, games and exercises that stimulate interest in measurement and allow comparisons between and among numerous objects. They measure ingredients and distances, and make estimations and predictions. They begin with nonstandard units, then calibrated instruments of measurement are introduced. Practice is provided for reading instruments such as balance scales and thermometers. Imperial measurements.

12. *Money and Time* BB 842

Children learn concepts about money by sorting, classifying and examining pennies, nickels, dimes and quarters. They learn how to make change and purchase small items. The activities relating to time give exercises that measure duration and teach the reading of clocks and calendars. A wide assortment of activities is presented.

13. *Management Guide* BB 843

The teacher's guide provides various observation and record keeping sheets including checklists for every booklet. Numerous reproducible worksheets are included.

Suggested Use: Grades Kindergarten to 2

The Wonderful Pigs of Jillian Jiggs (Print-Fiction). Phoebe Gilman. North Winds Press (SCH), 1988. 36 p. ISBN 0-590-71867-3 (\$4.95 pbk.) ISBN 0-590-71868-1 (\$11.95 hdc.) ISBN 0-590-71869-X \$29.95 Big Book

As a follow-up to her first book, Canadian author Phoebe Gilman shows Jillian Jiggs creating marvellous pigs out of old stockings, buttons and polyester fiberfil. Unfortunately, Jillian Jiggs, maker of marvellous pigs can't bear to part with any of her creations, and so she teaches neighborhood children (and us!) how to create their own treasures. Complete instructions follow the wonderful enthusiasm generated by the repetitive rhythm.

Suggested Use: Grades 2 to 4

Other Uses: English Language Arts

Work Mat Math: Getting Started Puddleduck Lake (Activity Kit). M. R. Brummett and Linda Holden. (Work Mat Math). Creative Publications (ADD), 1988. 14 p. Order No. 53560 (\$42.00)

Work Mat Math is a manipulative program containing nine story problem sets. The set evaluated, Puddleduck Lake, is one of three kits in the "Getting Started" set. The kit consists of six laminated work mats, six counter trays, 192 plastic counters (ducks, boats, etc.) and a step-by-step lesson guide. Twelve sequential lessons guide children through beginning math language including position words (over, under, beside, etc). The counters may also be used for counting, classifying, grouping and in many other language development ways.

Suggested Use: Grades Kindergarten to 5

Working With Word Problems in Math (Filmstrip Kit). Encyclopaedia Britannica Educational Corporation (EBP), 1978. Approx. 12 min. each Order No. QE1130 (\$140.00)

Four filmstrips with audiocassettes provide students with workable strategies for solving word problems. The problems use estimation, mental math and computational skills in several specific areas: addition and subtraction, multiplication and division, measurement, money, fractions, area, time and remainders. The examples used in the filmstrips provide models for analyzing, attacking and solving problems. Fully metric.

Suggested Use: Grades 5 to 6

Other Uses: Middle Years Math

Workjobs: Activity-Centred Learning for Early Childhood Education (Print-Teacher-Reference). Mary Baratta-Lorton. Addison-Welsey (ADD), 1972. 255 p. ISBN 0-201-04311-4 (\$20.03)

Over one hundred hands-on activities are presented in this long-time favourite teacher resource. Divided into eight chapters and liberally sprinkled with black and white photographs, the resource cleverly disguises readiness concepts or skills into interesting, challenging activities. The manipulative projects are clearly described with hints and materials necessary for making the individual "workjob", with classroom control suggestions and follow-up activities for each project. Primary age children can become actively involved

in language and mathematical development through the individual or group activities described in this resource. A classic.

Suggested Use: Teacher Reference

Workjobs II: Number Activities for Early Childhood (Print-Teacher-Reference).

Mary Baratta-Lorton. Addison-Wesley (ADD), 1979. 153 p. ISBN 0-201-04302-5 (\$16.84)

This resource contains specific instructions for creating 20 math-related tasks for individual or group work by Kindergarten or Grade 1 and 2 children. The activities are clearly described and each is illustrated with black and white photographs and sketches. Required materials, storage containers and directions are itemized, and helpful hints are provided to make the items attractive and durable. As opposed to its forerunner, this edition of *Workjobs* is specific to mathematics and contains suggested activities to enhance any math program. The arithmetic skills developed include counting, addition and subtraction, number recognition, and an introduction to mathematical symbols. An illustrated glossary is included, with several pages of blackline masters to assist the teacher in preparation of the various activities.

Suggested Use: Teacher Reference

Workjobs for Parents: Activity-Centred Learning in the Home (Print-Teacher-Reference).

Mary Baratta-Lorton. Addison-Wesley (ADD), 1975. 115 p. ISBN 0-201-04303-3 (\$10.43)

This handbook for parents contains approximately 50 homemade activities, many from the author's original resource *Workjobs* and some newly developed. All of the activities are suitable for early education students including preschool and kindergarten. The activities are child-centered and use manipulatives. They are designed to help children develop language and number skills while developing large and small muscle coordination. The activities are clearly presented. Each is illustrated with numerous black and white photographs.

Suggested Use: Teacher Reference

Zero in on Zero - Multiplication and Division (Software). DLM Learning Materials (DLM), 1990. ISBN 1-55924-265-6 (\$49.95)

This Apple software program consists of two 5 1/4" disks, a poster, and a user's guide. The multiplication disk features an amusement park theme, while the division disk has a music and dance theme. Each disk has two types of games: a practice session and a reward session. Program options include the ability to identify the type, number and level of problem difficulty. Progress is monitored by viewing or printing student records. Worksheets can be printed for reinforcement exercises. The program is drill and practice with some tutorial aspects. Colour, graphics and sound are used with animated cartoon characters.

Suggested Use: Grades 4 to 7

Other Uses: Middle Years Math

Media Index

16 mm

Artimus and Old Lace: Long Multiplication
Caretaker's Dilemma: Place Value
Dimensions
Dividing With Decimals
Donald in Mathmagic Land
Filbert and the Melon Cheater: Subtraction With Borrowing
Geometry - What's That?
The Ghost of Captain Peale: Linear Measurement and Mapping With Metric Units
The Great Diamond: Long Division
It's About Time
Magic Rectangle: Short Multiplication
Mathematics for Primary: Addition
Mathematics for Primary: Subtraction
Metric
Metric Measurement: Length and Area
Metric Measurement - Mass
Metric Measurement - Volume and Capacity
Muck and Mire's Metric Follies
Multiplication for Beginners
Multiplication With Fractions
Reciprocals - Multiplicative Inverse
Sets and Numbers
Solving Pairs of Equations
Time, Lines and Events. Revised.
We Use the Number Line
The Weird Number
What is Measurement? Standards

Activity Cards

Beginning Try-A-Tile
Geoboard Activity Cards: Primary Level
GUESS-Guide to Using Estimation Skills and Strategies
Techniques of Problem Solving

Activity Kits

The Amazing Arithmos
Grains and Seeds in the Canadian Agriculture
Logix
Three Bears Family Fun Set
Work Mat Math: Getting Started Puddleduck Lake

Audio Tutorial Kit

Telling Time

Audiocassettes

Turn on the Human Calculator in You!

Big Books

Animals! A Big Information Book

Counting More and More

Counting One to Five

Counting Six to Ten

The Doorbell Rang

Our First Big Book of Numbers

Our Second Big Book of Numbers

Ten for Dinner

What Did You Eat Today?

Filmstrip Kits

Countdown to New Math

Math for Every Season: Primary Level

Math, Money and You

Math Problem Solving: A Unit of Study

Mathematics for Beginners

Mathematics Readiness

Métis Crafts: Finger Weaving

Métis Crafts: Quill and Bead Earrings

Metric Measurement

Problem Solving With Math Skills

S.I. The Metric System

Solving Story Problems With Sherlock Jones and Proctor Watson

Using the Metric System: A Unit of Study

Working With Word Problems in Math

Journals

Arithmetic Teacher: Mathematics Education Through the Middle Years

Math Mania: Adventures in Mathematics

Print Kit

Ginn Extension Mathematics

Print-Fiction

The Alaska Mother Goose and Other North Country Nursery Rhymes

Alphonse Knows....

Animal Hours

Animal Sleepyheads 1 to 10

The Big Red Bus Ride

Big Time Bears

The Completed Hickory Dickory Dock

Count on Clifford

Counting Sheep

Deep Down Underground

Farmyard Counting Book

Five Little Monkeys Jumping on the Bed

Five Little Monkeys Sitting in a Tree

General Store

Germie Blew It

The Gingerbread Man

A Grain of Rice

The Grouchy Ladybug

The Guy Who Was Five Minutes Late

Hilary Knight's the Twelve Days of Christmas

How Many Snails? A Counting Book

If I Were a Cat I Would Sit in a Tree

The King's Chessboard

Know Your Numbers

Lemonade Parade

The Littlest Dinosaurs

Many Moons

Math Predictable Storybooks

The Math Whiz

Melisande

A Million Chameleons

Moir's Birthday

The Most Amazing Hide-and-Seek Counting Book

Mouse Count

Mr. Brown's Magnificent Apple Tree

My Silly Book of Counting

Old Enough

One Crow: A Counting Rhyme

One Duck, Another Duck

One Good Horse: A Cowpuncher's Counting Book

One Gorilla

1 Is One

Over in the Meadow: A Counting-Out Rhyme

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Study Prints

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Northern Number Charts

Videotapes

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Making Sense of a Large Number
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The Meaning of Percent
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Measurement: Find the Areas of Rectangles
Measurement: The Difference Between Perimeter and Area
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Multiplication With Fractions and Mixed Numbers
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Predicting Your Change
Probability: Possible Outcomes
Problem Solving: Acting It Out
Problem Solving: Drawing A Picture
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Problem Solving: Recognizing Necessary Information
Problem Solving: Using a Guide
Reasonableness of Answers
Relating Fractions and Decimals (It Figures)

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Sampling

Scale Drawings and Models

Simplifying the Problem

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Statistics: Analyzing Data

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Subtracting Mixed Numbers

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Teaching Mental Math

A Teaching Strategy for Problem Solving

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Understanding Mean, Median, and Mode

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