

Examples of Math Trade Books (Grades 6-8)

Numbers & Operations

Delightful decimals and perfect percents. Long, L. (2003).

Math Concepts: numbers can be represented as decimals (explicit)

Text Features: games and activities book; line drawings; includes table of contents and index; contains games and activities addressed to the student

Teaching Suggestions: presented in the text

Program of Studies: Grade 4 – SO#9, 10, 11; Grade 5 – SO#8, 9, 10, 11; Grade 6 – SO#6, 8; Grade 7 – SO#2, 3

The history of counting. Schmandt-Besserat, D. (1999).

Math Concepts: numbers were invented; numbers can be represented in many ways; the development of number systems coincided with societal and cultural developments (explicit)

Text Features: historical non-fiction; contains a glossary and index; colourful pictures

Teaching Suggestions: students can use various number systems to perform arithmetic operations and can compare method for calculations

Program of Studies: Grade 4 – SO#3, 4, 6, 7, 12; Grade 5 – SO#1, 2, 3, 13; Grade 6 – SO#1, 12, 14

If dogs were dinosaurs. Schwartz, D.M. (2005).

Math Concepts: ratio and proportion can be used to compare quantities (explicit)

Text Features: patterned text; beautiful illustrations; quantities used in the ratios are provided at the back of the book but most of these involve imperial measurements and would have to be converted to metric equivalents

Teaching Suggestions: students can create their own comparisons on posters; students can incorporate the use of technology and estimation to make comparisons.

Program of Studies: Grade 6 – SO#5

If you hopped like a frog. Schwartz, D. M. (1999).

Math Concepts: ratio and proportion can be used to compare quantities (explicit)

Text Features: patterned text; beautiful illustrations; quantities used in the ratios are provided at the back of the book but most of these involve imperial measurements and would have to be converted to metric equivalents

Teaching Suggestions: students can create their own comparisons on posters; incorporate the use of technology and estimation to make comparisons

Program of Studies: Grade 4 – SO#1, 2; Grade 5 – SO#2; Grade 6 – SO#5

Number stories of long ago. Smith, D. E. (2001).

Math Concepts: numbers describe quantities; numbers can be represented in multiple ways (explicit)

Text Features: historical narrative; contains a question box at the end of each chapter, a note to teachers, and mathematical explanations of the puzzles presented; colourful lithographs precede each chapter

Teaching Suggestions: problems are presented in the text

Program of Studies: Grade 4 – SO#1, 2, 6, 7, 8, 9; Grade 5 – SO#1, 2, 5, 6, 11; Grade 6 – SO#1, 2, 3, 8

Roman numerals. Adler, D. A. (1977).

Math Concepts: numbers can be represented in multiple ways (explicit), place value

Text Features: information text

Teaching Suggestions: students can investigate mathematical operations using the various number systems presented in the text; students can explain order by making reference to place value

Program of Studies: Grade 4 – SO#1, 2; Grade 5 – SO#1; Grade 6 – SO#1

The essential arithmetricks. Poskitt, K. (1999).

Math Concepts: algorithms can be used to demonstrate a proficiency with calculations; understanding numerical patterns can encourage the development of a number sense for decimals (explicit)

Text Features: information text; includes table of contents; cartoon drawings

Teaching Suggestions: chapters can be read and discussed throughout the teaching unit

Program of Studies: Grade 7 – SO#2, 4, 5, 7; Grade 8 – SO#6; Grade 9 – SO#3

Erin McEwan, your days are numbered. Ritchie, A. (1990).

Math Concepts: numbers can be used to solve problems (explicit)

Text Features: novel; imperial measurements used

Teaching Suggestions: students can construct mathematics questions that arise from situations involving consumer sales; students can use metric measurements to convert decimals into fractions

Program of Studies: Grade 7 – SO#2, 3, 4, 5, 7; Grade 8 – SO#3, 4, 6; Grade 9 – SO #3

Piece=part=portion: fractions=decimals=percents. Gifford, S. (2003)

Math Concepts: fractions, decimals, and percents are all related; parts of a whole can be represented in different ways

Text Features: simple photographs; little narrative

Teaching Suggestions: students can express the solutions orally; students can create their own examples of pieces, parts and portions; students can figure out the decimal or the percentage based on the fraction without seeing the solutions

Program of Studies: Grade 4 – SO#8, 9, 10; Grade 6 – SO#6

Fabulous fractions. Long, L. (2001).

Math Concepts: numbers can be represented as fractions; problems can be solved using arithmetic operations with fractions (explicit)

Text Features: games and activities book; includes contents and index

Teaching Suggestions: problems presented in the text

Program of Studies: Grade 7 – SO#5, 7; Grade 8 – SO#6; Grade 9 – SO#3

Mathematickles. Franco, B. (2003).

Math Concepts: number operations can be used to express relationships (explicit)

Text Features: poetry; language and number operations are combined into playful equations; colourful illustrations (picture book)

Teaching Suggestions: students can write their own mathematical poetry (e.g. crisp air + shadows tall + cat's thick coat = signs of fall)

Program of Studies: Grades 7-9 – General Outcomes: develop number sense

Much bigger than Martin. Kellogg, S. (1992).

Math Concepts: ratios can be used to solve problems (implicit)

Text Features: narrative picture book

Teaching Suggestions: students can calculate the height of the person throughout the book using ratios to compare the sizes of body parts

Program of Studies: Grade 8 – SO#4, 5

The number devil. Enzensberger, H. M. (1997).

Math Concepts: numbers can be represented in multiple ways; numbers can be used to solve problems (explicit)

Text Features: novel; colourful artwork; humorous

Teaching Suggestions: students can generate and extend the number patterns presented in the text

Program of Studies: Grade 7 – SO#1, 2, 3, 5, 6, 7; Grade 8 – SO #3, 4, 5, 6, 7; Grade 9 – SO #3

On beyond a million. Schwartz, D. M. (2001).

Math Concepts: numbers can be expressed as powers with exponents and bases (explicit)

Text Features: picture book; cartoon drawings; sidebars provide additional information

Teaching Suggestions: students can express large numbers in scientific form

Program of Studies: Grade 9 – SO#1

Patterns & Relations

Frank and Zelda. Kovalski, M. (1990).

Math Concepts: patterns can be used to describe the world and solve problems (implicit)

Text Features: narrative

Teaching Suggestions: students can estimate and calculate the number of paying customers in a year; students can create a table or chart from the representation of the pattern; students can write their own patterned story

Program of Studies: Grade 4– SO#1, 2, 3; Grade 5 – SO#1; Grade 6 – SO#1

The hundred penny box. Mathis, S. B. (1995).

Math Concepts: objects can be sorted according to attributes; non-numerical and numerical patterns can be investigated, established, and communicated (implicit)

Text Features: narrative; watercolours reproduced in brown and white

Teaching Suggestions: students can share their collections and memories; objects can be counted, categorized, and represented in a table or a chart

Program of Studies: Grade 4 – SO#1, 2, 3; Grade 5 – SO#1; Grade 6 – SO#1, 2

Jacob Two-two and the dinosaur. Richler, M. (2004).

Math Concepts: patterns can be used to describe the world and to solve problems (implicit)

Text Features: novel; black and white line drawings; the second book of a series

Teaching Suggestions: students can recognize number patterns in the story and express these using symbols; students can write a story about a character "Sam Three-three"

Program of Studies: Grade 4 – SO#1, 2; Grade 5 – SO #1; Grade 6 – SO #1

The king's chessboard. Birch, D. (1988).

Math Concepts: patterns can be constructed, extended, and summarized using rules and charts (explicit)

Text Features: narrative picture book; watercolour artwork

Teaching Suggestions: students can work together to solve the problem: "How many grains of rice would the wise man have received?"; students can identify the pattern and apply it to their own stories; students can translate the pattern to a table of values; students can play out the story using a chessboard and grains of rice~ how many days can they make it?

Program of Studies: Grade 4 – SO#1, 3, 5, 6; Grade 5 – SO#1, 2, 3; Grade 6 – SO#1, 2, 3, 4

One grain of rice. Demi (1997).

Math Concepts: patterns can be constructed, extended, and summarized using rules and charts (explicit)

Text Features: narrative folktale; detailed Indian-inspired art; strong female character; fold-out page reveals growth pattern; chart of numbers of grains of rice is included

Teaching Suggestions: students can solve the question: "How many grains of rice by day ____?"; students can translate the pattern to a table of values (table included at the end of the story); students can write number sentences for each day

Program of Studies: Grade 4 – SO#1, 3, 5, 6; Grade 5 – SO#1, 2, 3; Grade 6 – SO#1, 2, 3, 4

The sundae scoop. Murphy, S. J. (2003).

Math Concepts: patterns can be used to describe the world and to solve problems; relationships can be used to summarize, generalize, and extend patterns (explicit)

Text Features: narrative; weak plot; includes a note for adults and kids that explains the mathematical concept of combinations

Teaching Suggestions: students can invent their own way of representing the pattern of choices; students could have a sundae party and chart possible combinations of ingredients

Program of Studies: Grade 4 – SO#1, 2, 3, 4; Grade 6 – SO#1, 2

The token gift. McKibbin, H. W. (1996).

Math Concepts: patterns can be constructed, extended, and summarized using rules and charts (explicit)

Text Features: narrative picture book; vivid illustrations; includes historical note

Program of Studies: Grade 4 – SO#1, 2; Grade 5 – SO#1, 2, 4, 5; Grade 6 – SO#1, 2, 3; Grade 7 – SO#1, 4

Uno's garden. Base, G. (2006).

Text Features: beautifully illustrated narrative picture book; creative nonsensical language; reader searches illustrations for the objects discussed in the text; each page has a legend of objects in the story, which also lays out the patterns; section at the back explains the different patterns used in the story

Teaching Suggestions: students can write number sentences for each page; students can identify and extend the pattern; students can create their own story; students can translate the pattern to a table or chart

Program of Studies: Grade 4 – SO#2, 3; Grade 5 – SO#1; Grade 6 – SO#1

Anno's mysterious multiplying jar. Anno, M., & Anno, M. (1999).

Math Concepts: patterns can be expressed in terms of variables; variables and equations can be used to express and summarize relationships (explicit)

Text Features: picture book; includes afterword; recursive ending

Teaching Suggestions: as the book is read, students can develop their own system of notation; introduce students to factorial notation

Program of Studies: Grade 7 – SO #1; Grade 9 – SO#1

The countingbury tales. de Guzmán. (2000).

Math Concepts: games and beauty often compel mathematicians to develop concepts (explicit)

Text Features: information book; includes table of contents and bibliography; historical; each chapter differs in degree of difficulty

Teaching Suggestions: activities are presented in the text

Program of Studies: Grade 7 – SO #1, 5; Grade 9 – SO #1

Fascinating Fibonacci: Mystery and magic in numbers. Garland, T. H. (1990).

Math Concepts: patterns can be used to describe the world and to solve problems (explicit)

Text Features: information book; includes diagrams, a few proofs, and historical notes

Teaching Suggestions: students can express patterns using variables

Program of Studies: Grade 7 – SO#1, 2, 3, 4, 5, 6; Grade 8 – SO#2; Grade 9 – SO#1

A gebera named Al. Isdell, W. (1993).

Math Concepts: patterns can be expressed using variables (explicit)

Text Features: novel; includes table of contents, a map of mathematics, and a list of characters

Teaching Suggestions: integrate with science unit on the periodic table; can be used to teach order of operations (Strand: Number; Grade 9 – SO# 1,4)

Program of Studies: Grade 7 – SO#3, 4, 5, 6; Grade 8 – SO#2; Grade 9 – SO#3, 4

Wild Fibonacci: Nature's secret code revealed. Hulme, N. (2005).

Math Concepts: patterns can be used to describe the world and to solve problems

Text Features: narrative, rhyming text; picture book; includes a forward with history of Fibonacci and "Ways to have fun with Fibonacci"

Teaching Suggestions: students can describe, orally or in writing, a given pattern using mathematical language; students can translate the pattern to a table of values; students can formulate a linear relation to represent the relationship in a given oral or written pattern

Program of Studies: Grade 5 – SO#1; Grade 6 – SO#1; Grade 7 – SO#1

Geometry

A cloak for the dreamer. Friedman, A. (1994).

Math Concepts: motions can be described as transformations; tessellating shapes can be used in designs (explicit)

Text Features: narrative; beautiful watercolours; includes author's notes for parents, teachers, and other adults

Teaching Suggestions: students can create their own cloak design; activities are presented on the last page

Program of Studies: Grade 5 – SO#8, 9; Grade 6 – SO#6, 7; Grade 7 – SO#4, 5

Groovy Geometry. Long, L. (2003).

Math Concepts: direct and indirect measurement can be used to solve problems; the characteristics of 3-D objects and 2-D shapes can be described and the relationships among them can be analyzed

Text Features: games and activities; "Tips and Tricks", extensions, and index included

Teaching Suggestions: activities are provided

Program of Studies: Grade 3 – SO#4, 5, 6, 7; Grade 4 – SO#3, 4; Grade 5 – SO#1, 4, 6, 7; Grade 6 – SO#1, 2, 3, 4, 5; Grade 7 – SO#1, 2,

Legacies from ancient Greece. Ganeri, A. (1999).

Math Concepts: mathematics is a cultural activity (implicit)

Text Features: information book; includes contents, a glossary, and an index; part of a series on ancient civilizations

Teaching Suggestions: students can read the section on science and mathematics and make posters showing the origin of geometric concepts; using the section on famous buildings, students can explore the golden ratio

Program of Studies: Grade 3 – SO#7; Grade 4 – SO#4; Grade 5 – SO#6, 7; Grade 6 – SO#4, 5

Squares: Shapes in math, science and nature. Ross, C. S. (1998).

Math Concepts: everyday phenomena can be described and compared using squares (explicit)

Text Features: includes historical notes; contains contents, answers, a glossary, and an index; metric measurements are given

Teaching Suggestions: activities and games are presented in the text

Program of Studies: Grade 5 – SO#8, 9; Grade 6 – SO#6, 7

Sam Johnson and the blue ribbon quilt. Ernst, L. C. (1992).

Math Concepts: visualization of 2-D shapes can be used to solve problems related to spatial relations (implicit)

Text Features: narrative; detailed illustrations; different quilt patterns form the border on each page

Teaching Suggestions: students can classify 2-D shapes according to angles and sides; students can design a quilt

Program of Studies: Grade 5 – SO#6, 7; Grade 6 – SO#4, 5

Sir Cumference and the first round table. Neuschwander, C. (1997).

Math Concepts: everyday phenomena can be described and compared using measurements of perimeter and circumference (explicit)

Text Features: narrative; imperial measurements are used

Teaching Suggestions: students can investigate and build models of tables having the same areas but different perimeters

Program of Studies: Grade 4 – SO#3; Grade 5 – SO#1, 2; Grade 6 – SO#1, 2, 3

Sir Cumference and the great knight of Angleland. Neuschwander, C. (2001).

Math Concepts: everyday phenomena can be described and compared using angle measurements (explicit)

Text Features: narrative; a protractor is included

Teaching Suggestions: students can plan a treasure hunt using angle measurements

Program of Studies: Grade 4 – SO#3; Grade 5 – SO#1, 2; Grade 6 – SO#1, 2, 3

Sir Cumference and the Isle of Immeter. Neuschwander, C. (2006).

Math Concepts:

Text Features: narrative adventure; the play on words for characters' names reinforces vocabulary

Teaching Suggestions: imperial measurements are used and can be discussed

Program of Studies: Grade 3 – SO#5; Grade 5 – SO#2; Grade 6 – SO#3; Grade 7 – SO#1

Spaghetti and meatballs for all! Burns, M. (1997).

Math Concepts: space can be measured using perimeter and area; shapes with the same area can have different perimeters (explicit)

Text Features: narrative; includes the author's notes for parents, teachers, and other adults

Teaching Suggestions: activities are presented in the text

Program of Studies: Grade 4 – SO#3; Grade 5 – SO#2; Grade 6 – SO#3

Zachary Zormer; Shape transformer. Reisberg, J. (2006).

Math Concepts: problems can be solved using direct and indirect measurements

Text Features: narrative picture book; watercolour paintings; instructions for projects included; imperial measurements used

Teaching Suggestions: students can bring in something to measure; students can make a Moebius strip; students can make an expanding frame; students can light and measure a big area with a small beam of light

Program of Studies: Grade 4 – SO#3; Grade 5 – SO#3; Grade 6 – SO#3

Circles: Shapes in math, science and nature. Ross, C. S. (1998).

Math Concepts: everyday phenomena can be described and compared using circles (explicit)

Text Features: includes historical notes; contains contents, circle formulas, answers, a glossary, and an index; metric measurements are given

Teaching Suggestions: Pi is presented incorrectly as 3.14; activities and games are presented in the text

Program of Studies: Grade 7 – SO#1, 2

Holes. Sachar, L. (2000).

Math Concepts: everyday phenomena can be described and compared using measurement; the effects of dimension changes in 3-D objects can be described using volume measurements (implicit)

Text Features: novel; National book award winner

Teaching Suggestions: students can calculate the volume of the dirt removed from the holes and the surface area needed for the resulting conical piles

Program of Studies: Grade 8 – SO#3, 4

The librarian who measured the earth. Lasky, K. (1994).

Math Concepts: similar triangles may be used to solve problems; angle measurements are linked to the properties of parallel lines (explicit)

Text Features: biography of Eratosthenes; picture book; includes the author's note, an afterword, and a bibliography

Teaching Suggestions: students can replicate Eratosthenes' system of measurement using e-mail partners from another city

Program of Studies: Grade 7 – SO#1, 2; Grade 8 – SO#1; Grade 9 – SO#1

The library of Alexandria. Trumble, K. (2003).

Math Concepts: mathematics develops within a cultural context (implicit)

Text Features: information book; includes a table of contents, maps, family trees, names and terms, a bibliography, suggested reading lists, and an index; full-page colourful and detailed illustrations; includes short biographical notes on Euclid and Archimedes

Teaching Suggestions: students can determine the volume of a sphere that fits exactly into a cylinder

Program of Studies: Grade 8 – SO#4, 7

Polyhedron origami for beginners. Kawamura, M. (2001).

Math Concepts: 3-D objects can be described and analyzed according to their characteristics and their relationship to 2-D shapes (explicit)

Text Features: activity book; contains brightly-coloured photographs and diagrams; includes step-by-step instructions

Teaching Suggestions: students can construct, identify, and classify polyhedrons

Program of Studies: Grade 8 – SO#2, 3

Sir Cumference and the dragon of Pi. Neuschwander, C. (1999).

Math Concepts: properties of circles can be used to solve problems; everyday phenomena can be described and compared using measurement (explicit)

Text Features: narrative adventure; the play on words for characters' names reinforces vocabulary

Teaching Suggestions: imperial measurements are used; the mathematically incorrect use of three and one-seventh to describe Pi is corrected on the last page of the book

Program of Studies: Grade 7 – SO#1, 2; Grade 9 – SO#1

Statistics & Probability

Charlie and the chocolate factory. Dahl, R. (2004).

Math Concepts: probability can be used to represent and solve problems involving uncertainty (implicit)

Text Features: novel

Teaching Suggestions: students can determine the theoretical probability of receiving one of the five golden tickets; students can compare the odds of winning lotteries to the events in the book; students can conduct experiments on drawing a winning ticket

Program of Studies: Grade 5 – SO#3, 4; Grade 6 – SO#4

In the year of the boar and Jackie Robinson. Lord, B. B. (2003).

Math Concepts: data can be collected, displayed, and analyzed to make predictions (implicit)

Text Features: novel; set in the United States

Teaching Suggestions: students can analyze baseball statistics and make predictions

Program of Studies: Grade 5 – SO#3; Grade 6 – SO#4

It's probably Penny. Leedy, L. (2007).

Math Concepts: experimental or theoretical probabilities can be used to represent and solve problems involving uncertainty

Text Features: narrative picture book; key vocabulary is bolded

Teaching Suggestions: students can do the assignment presented in the book

Program of Studies: Grade 5 – SO#3, 4; Grade 6 – SO#4

Why do buses come in threes? Eastaway, R., & Wyndham, J. (2000).

Math Concepts: everyday phenomena can be described using probability (explicit)

Text Features: information book; includes a table of contents, a foreword, an introduction, references, and an index; contains dense text

Teaching Suggestions: students can investigate the questions posed in each chapter

Program of Studies: Grade 7 – SO#4, 5, 6; Grade 8 – SO#2; Grade 9 – SO#4

Puzzles & Problems

50 mathematical puzzles and problems. Cohen, G. (Ed.). (2001).

Math Concepts: logic, symmetry, and numbers can be used to solve problems (explicit)

Text Features: collection of puzzles from the International Championship of Mathematics and Logic; includes a preface, a table of contents, and solutions

Teaching Suggestions: puzzles are presented in the text

Program of Studies: focuses on number and shape and space strands

How math works. Vorderman, C. (1999).

Math Concepts: everyday phenomena can be described using mathematics (explicit)

Text Features: activity and information book; historical notes are included; colourful pictures and diagrams; includes a table of contents, a glossary, answers to puzzles, and an index

Teaching Suggestions: activities are presented in the text

Program of Studies: all four strands are addressed

The man who counted. Tahan, M. (1993).

Math Concepts: throughout history, people have engaged in solving mathematical problems; there are connections between philosophy, religion, and mathematics (explicit)

Text Features: narrative; set in the 13th century on the road to Baghdad; answers are provided within the text; historical references to traditional and classic problems are made

Teaching Suggestions: students can investigate the problems as they are introduced and prior to reading the answer

Program of Studies: focuses on the number strand

Marvels of math. Haven, K. (1998).

Math Concepts: mathematics develops in a social context and is a dynamic cultural activity (explicit)

Text Features: biographies; a collection of 16 historical stories; includes a table of contents, an introduction, and an index; brief summaries, terms to know, and follow-on questions and activities are included for each story

Teaching Suggestions: activities presented in the text tend not to support constructivist approaches and need to be adapted

Program of Studies: all four strands are addressed

Math trek: Adventures in the mathzone. Peterson, I., & Henderson, N. (2000).

Math Concepts: numbers, arithmetic, geometry, and algebra can be used to solve problems and investigate patterns (explicit)

Text Features: narrative; weak plot; includes a preface, answers, a glossary, further readings, and an index; contains photographs, diagrams, drawings, and tables

Teaching Suggestions: problems are presented in the text

Program of Studies: focuses on number, shapes and space, and patterns and relations strands

Women and numbers. Perl, T. (1993).

Math Concepts: women are actively engaged in creating new mathematics; numbers can be used to solve problems (explicit)

Text Features: biographies; includes a table of contents, timelines, and solutions to activities; the historical backgrounds of conceptual developments are provided

Teaching Suggestions: activities are presented in the text

Program of Studies: all four strands are addressed

Histories & Biographies

Women and numbers. Perl, T. (1993).

Math Concepts: women are actively engaged in creating new mathematics; numbers can be used to solve problems (explicit)

Text Features: biographies; includes a table of contents, timelines, and solutions to activities; the historical backgrounds of conceptual developments are provided

Teaching Suggestions: activities are presented in the text

Program of Studies: all four strands are addressed; Grades 7-9

Roman numerals. Adler, D. A. (1977).

Math Concepts: numbers can be represented in multiple ways (explicit)

Text Features: information text

Teaching Suggestions: students can investigate mathematical operations using the various number systems presented in the text

Program of Studies (Number): Grade 4 – SO#1, 2; Grade 5 – SO#1; Grade 6 – SO#1

Number stories of long ago. Smith, D. E. (2001).

Math Concepts: numbers describe quantities; numbers can be represented in multiple ways (explicit)

Text Features: historical narrative; contains a question box at the end of each chapter, a note to teachers, and mathematical explanations of the puzzles presented; colourful lithographs precede each chapter

Teaching Suggestions: problems are presented in the text

Program of Studies (Number): Grade 4 – SO#1, 2, 6, 7, 8, 9; Grade 5 – SO#1, 2, 5, 6, 11; Grade 6 – SO#1, 2, 3, 8

Mathematicians are people, too. Volume 2. Reimer, L., & Reimer, W. (1995).

Math Concepts: mathematics is developed and shaped by humans (explicit)

Text Features: biographies; includes an introduction for teachers, an introduction for students, a resource list, and a glossary; black and white full-page illustrations

Teaching Suggestions: activities are given in the introduction for teachers

Program of Studies: all four strands are identified and addressed; Grades 7-9

Mathematicians are people, too. Volume 1. Reimer, L., & Reimer, W. (1990).

Math Concepts: mathematics is a human creation (explicit)

Text Features: biographies; includes an introduction for teachers, an introduction for students, a resource list, and a glossary; black and white full-page illustrations

Teaching Suggestions: activities are given in the introduction for teachers

Program of Studies: all four strands are identified and addressed; Grades 7-9

Legacies from ancient Greece. Ganeri, A. (1999).

Math Concepts: mathematics is a cultural activity (implicit)

Text Features: information book; includes contents, a glossary, and an index; is part of a series on ancient civilizations

Teaching Suggestions: students can read the section on science and mathematics and make posters showing the origin of geometric concepts; using the section on famous buildings, students can explore the golden ratio

Program of Studies (Shape and Space): Grade 3 – SO#7; Grade 4 – SO#4; Grade 5 – SO#6, 7; Grade 6 – SO#4, 5

How math works. Vorderman, C. (1999).

Math Concepts: everyday phenomena can be described using mathematics (explicit)

Text Features: activity and information book; historical notes are included; colourful pictures and diagrams; includes a table of contents, a glossary, answers to puzzles, and an index

Teaching Suggestions: activities are presented in the text

Program of Studies: all four strands are addressed; Grades 7-9

The librarian who measured the earth. Lasky, K. (1994).

Math Concepts: similar triangles may be used to solve problems; angle measurements are linked to the properties of parallel lines (explicit)

Text Features: biography of Eratosthenes; picture book; includes the author's note, an afterword, and a bibliography

Teaching Suggestions: students can replicate Eratosthenes' system of measurement using e-mail partners from another city

Program of Studies (Shape and Space): Grade 7 – SO#1, 2; Grade 8 – SO#1; Grade 9 – SO#1

The library of Alexandria. Trumble, K. (2003).

Math Concepts: mathematics develops within a cultural context (implicit)

Text Features: information book; includes a table of contents, maps, family trees, names and terms, a bibliography, suggested reading lists, and an index; full-page colourful and detailed illustrations; includes short biographical notes on Euclid and Archimedes

Teaching Suggestions: students can determine the volume of a sphere that fits exactly into a cylinder

Program of Studies (Shape and Space): Grade 8 – SO#4, 7

The man who counted. Tahan, M. (1993).

Math Concepts: throughout history, people have engaged in solving mathematical problems; there are connections between philosophy, religion, and mathematics (explicit)

Text Features: narrative; set in the 13th century on the road to Baghdad; answers are provided within the text; historical references to traditional and classic problems are given

Teaching Suggestions: students can investigate the problems as they are introduced and prior to reading the answer

Program of Studies: focuses on the number strand; Grades 7-9

Marvels of math. Haven, K. (1998).

Math Concepts: mathematics develops in a social context and is a dynamic cultural activity (explicit)

Text Features: biographies; collection of 16 historical stories; includes a table of contents, an introduction, and an index; included for each story are brief summaries, terms to know, follow-on questions, and activities

Teaching Suggestions: activities presented in the text tend not to support constructivist approaches and need to be adapted

Program of Studies: all four strands are addressed; Grades 7-9

The history of counting. Schmandt-Besserat, D. (1999).

Math Concepts: numbers were invented; numbers can be represented in many ways; the development of number systems coincided with societal and cultural developments (explicit)

Text Features: historical non-fiction; contains a glossary and an index; colourful pictures

Teaching Suggestions: students can use various number systems to perform arithmetic operations and can compare their methods for performing calculations

Program of Studies (Number): Grade 4 – SO#1, 2, 3, 6; Grade 5 – SO#1, 2, 5; Grade 6 – SO#1

Fractals, googols and other mathematical tales. Pappas, T. (1993).

Math Concepts: mathematical ideas emerge from human imagination (explicit)

Text Features: historical accounts included; contains a table of contents, solutions, answers, and explanations

Teaching Suggestions: activities are presented in the text

Program of Studies: concepts include the three strands of number, shape and space, and patterns and relations; Grades 4-6

Fascinating Fibonacci: Mystery and magic in numbers. Garland, T. H. (1990).

Math Concepts: patterns can be used to describe the world and to solve problems (explicit)

Text Features: information book; includes diagrams, a few proofs, and historical notes

Teaching Suggestions: students can express patterns using variables

Program of Studies (Patterns and Relations): Grade 7 – SO#1, 2, 3, 5, 6; Grade 8 – SO#1; Grade 9 – SO#1, 2

The countingbury tales. de Guzmán. (2000).

Math Concepts: games and beauty often compel mathematicians to develop concepts (explicit)

Text Features: information book; includes a table of contents and a bibliography; a historical perspective is given; each chapter differs in degree of difficulty

Teaching Suggestions: activities are presented in the text

Program of Studies (Patterns and Relations): Grade 7 – SO#1, 2;
Grade 9 – SO#1

Al-Khwarizmi: The inventor of algebra. Brezina, C. (2006).

Math Concepts: mathematics is a cultural activity; mathematics has developed over time; algebraic expressions can be used to solve problems

Text Features: reference book; includes timeline, glossary, for more information, for further reading, bibliography and index

Teaching Suggestions: excellent resource for the history of algebra

Program of Studies: Grades 7-12

Archimedes: Mathematical genius of the ancient world. Gow, M. (2005).

Math Concepts: mathematics is an ancient process; mathematics has developed over time; Pi; Equilibrium; Archimedes' Principle

Text Features: non-fiction; historical resource; activities, chronology, chapter notes, glossary further reading and Internet addresses, and index included

Teaching Suggestions: activities presented in text; students can present a report

Program of Studies: Grades 7-9

Celebrating women in mathematics and science. Cooney, M. P. (Ed.). (1996).

Math Concepts: many women have been actively engaged in creating new mathematics (explicit)

Text Features: biographies; includes a table of contents and a preface; ink illustrations

Teaching Suggestions: students can do biographical research and make presentations on famous mathematicians

Program of Studies: Grades 7-9