

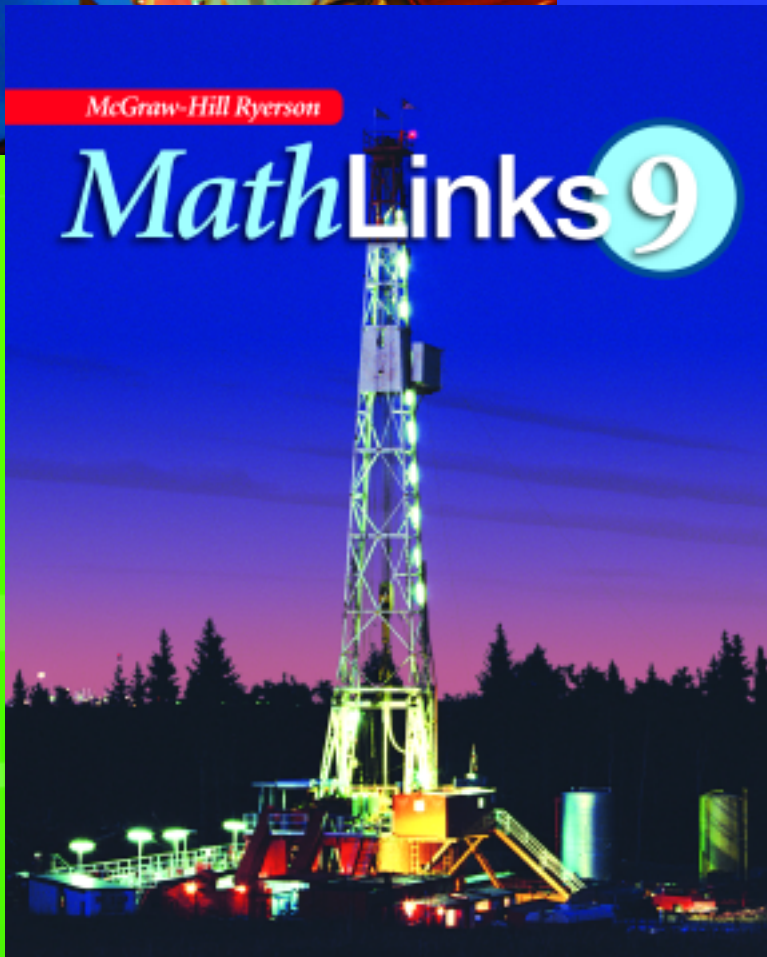
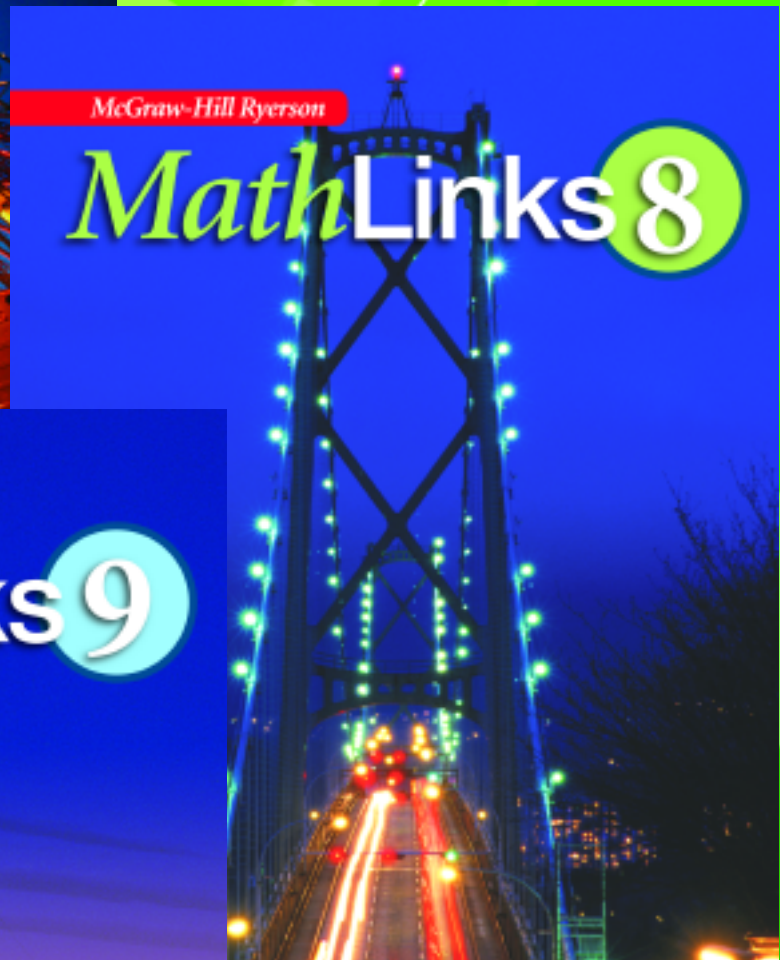
NEW



**McGraw-Hill
Ryerson**



*Dedicated to Meeting
the Diverse Needs of
Grades 7-9
Students and Teachers*



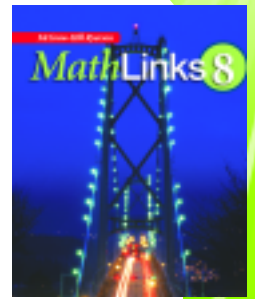
**Program Overview
and
Guide to Reviewing
MathLinks 8**



**McGraw-Hill
Ryerson**

Guide to Reviewing

Selecting a resource to support the implementation of a new mathematics curriculum is a very important task that will impact students, teachers, and administrators for years to come.

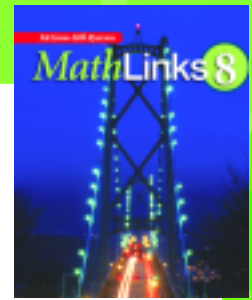


Consider these *MathLink* Advantages

Feature	Example	The <i>MathLinks</i> Advantage
Richness of Visuals	Pg. 2–3	<ul style="list-style-type: none"> A rich variety of over 750 photos, graphs, illustrations, charts and cartoons provide context for the math, enhance readability, and engage students
A Tour of Your Text	Pg. viii–xii	<ul style="list-style-type: none"> Familiarizes students with the resource and highlights key features
Problem Solving and Strategies Chart	Pg. xiii–xvii	<ul style="list-style-type: none"> This chart may be referenced by students throughout the course, and allows parents to coach their students at home
Chapter Opener	Pg 118-119	<ul style="list-style-type: none"> Visually engaging 2-page spread introduces students to what they will learn in the chapter; lists Key Words and What You Will Learn; and includes a Literacy Link
Literacy Links	Pg. 77	<ul style="list-style-type: none"> Provide strategies to help students read and understand the mathematics of the chapter
Foldables™	Pg. 4	<ul style="list-style-type: none"> Foldables serve as graphic organizers that give students an opportunity to take responsibility for their learning
Math Links	Pg. 5	<ul style="list-style-type: none"> Serve as a chapter problem and helps connect math to students' personal experiences
Wrap It Up!	Pg. 39	<ul style="list-style-type: none"> Gives students the opportunity to demonstrate their understanding of the chapter concepts Can be used as a summative assessment
Focus On	Pg. 6	<ul style="list-style-type: none"> Identifies specific skills students will learn during each lesson Student-friendly language
Three-Part Lesson	Pg. 6-17	<ul style="list-style-type: none"> A classroom-tested method of presenting mathematical concepts that allows for ease of navigation for students, teachers, and parents
Show You Know	Pg. 48	<ul style="list-style-type: none"> Provides student and teacher with ongoing feedback
Examples	Pg. 49	<ul style="list-style-type: none"> Provide assistance for absent students and at-home coaching
Web Links	Pg. 53	<ul style="list-style-type: none"> Provide ICT connection, as well as links to extra practice or information on the <i>MathLinks</i> Online Learning Centre

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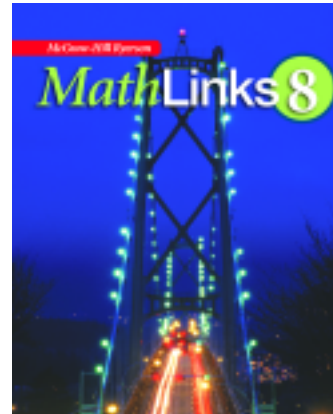
Guide to Reviewing



< CONTINUED

Feature	Example	The <i>MathLinks</i> Advantage
Tech Links	Pg. 84	<ul style="list-style-type: none"> • Provide information about using software and/or a calculator
Geography Link	Pg. 123	<ul style="list-style-type: none"> • Links the current topic to history
Science Link	Pg. 260	<ul style="list-style-type: none"> • Links the current topic to science
Art Link	Pg. 317	<ul style="list-style-type: none"> • Links the current topic to sports
Did You Know?	Pg. 145	<ul style="list-style-type: none"> • Provides interesting facts related to a given scenario
Thought Balloons	Pg. 64	<ul style="list-style-type: none"> • Provide students with ideas and tips to work through a question • Show metacognition
Key Ideas	Pg. 127	<ul style="list-style-type: none"> • Summarizes the skills and concepts of a lesson
Communicate the Ideas	Pg. 128	<ul style="list-style-type: none"> • Provides opportunities for students to verbalize or explain what they have learned
Mental Math	Pg. 140	<ul style="list-style-type: none"> • Boxes with the ME (Mental Math and Estimation) logo provide strategies for mental math • The ME logo by itself indicates questions where mental math should be used
Strategies	Pg. 205	<ul style="list-style-type: none"> • Suggest strategies that students might use when working on a problem
Chapter Review	Pg. 150-151	<ul style="list-style-type: none"> • Provides students with extra practice. It is organized by section so that students can look back if they need help with a question
Practice Test	Pg. 190-191	<ul style="list-style-type: none"> • Can be used as formative assessment to prepare students for the Chapter Test, which appears as a Blackline Master on the teacher CD-ROM
Math Games	Pg. 322	<ul style="list-style-type: none"> • Presents an alternative to repetitive exercise and allows students to have fun while they learn
Challenges in Real Life	Pg. 323	<ul style="list-style-type: none"> • Provide real-world contexts; most have multiple entry points
Task	Pg. 327	<ul style="list-style-type: none"> • Require students to apply what they have learned in the four previous chapters to solve real-life, broad-based problems. • Can be used as an alternative to the Chapter Test

Dedicated to Meeting the Diverse Needs of Grades 7-9 Students and Teachers



A Message from the Author Team

MathLinks is a new resource that meets the outcomes of the 2006 WNCP Common Curriculum Framework for 7–9 Mathematics.

We used **current educational research and practical classroom experience** to help us design a resource to **meet the needs of Western Canadian students and teachers**. Success for students was paramount in the development process. We continually asked ourselves two key questions:

- **Will this help the students in learning mathematics?**
- **Will this support teachers in implementing the new curriculum?**

Our instructional model includes a **variety of instructional and assessment techniques** that accommodates the diverse needs of both students and teachers.

We would like to thank the over 350 educators and 950 students who provided valuable feedback and insight during the development of this mathematics program.

— *The Author Team*

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MathLinks 8

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McGraw-Hill Ryerson Western Sales Team ..	Back Cover

Please feel free to detach the chart on the opposite page to use as a reference tool when reviewing **MathLinks 8**.



Table of Contents

Chapter 1 Representing Data

- 1.1 Advantages and Disadvantages of Different Graphs
- 1.2 Misrepresenting Data
- 1.3 Critiquing Data Presentation

Chapter 2 Ratios, Rates, and Proportional Reasoning

- 2.1 Two-Term and Three-Term Ratios
- 2.2 Rates
- 2.3 Proportional Reasoning

Chapter 3 Pythagorean Relationship

- 3.1 Squares and Square Roots
- 3.2 Exploring the Pythagorean Relationship
- 3.3 Estimating Square Roots
- 3.4 Using the Pythagorean Relationship
- 3.5 Applying the Pythagorean Relationship

Chapter 4 Understanding Percent

- 4.1 Representing Percents
- 4.2 Fractions, Decimals, and Percents
- 4.3 Percent of a Number
- 4.4 Combining Percents

Chapter 5 Surface Area

- 5.1 Views of Three-Dimensional Objects
- 5.2 Nets of Three-Dimensional Objects
- 5.3 Surface Area of a Prism
- 5.4 Surface Area of a Cylinder

Chapter 6 Fraction Operations

- 6.1 Multiplying a Fraction and a Whole Number
- 6.2 Dividing a Fraction by a Whole Number
- 6.3 Multiplying Proper Fractions
- 6.4 Multiplying Improper Fractions and Mixed Numbers
- 6.5 Dividing Fractions and Mixed Numbers
- 6.6 Applying Fraction Operations

Chapter 7 Volume

- 7.1 Understanding Volume
- 7.2 Volume of a Prism
- 7.3 Volume of a Cylinder
- 7.4 Solving Problems Involving Prisms and Cylinders

Chapter 8 Integers

- 8.1 Exploring Integer Multiplication
- 8.2 Multiplying Integers
- 8.3 Exploring Integer Division
- 8.4 Dividing Integers
- 8.5 Applying Integer Operations

Chapter 9 Linear Relations

- 9.1 Analysing Graphs of Linear Relations
- 9.2 Patterns in a Table of Values
- 9.3 Linear Relationships

Chapter 10 Solving Linear Equations

- 10.1 Modelling and Solving One-Step Equations: $ax = b$, $\frac{x}{a} = b$
- 10.2 Modelling and Solving Two-Step Equations: $ax + b = c$
- 10.3 Modelling and Solving Two-Step Equations: $\frac{x}{a} + b = c$
- 10.4 Modelling and Solving Two-Step Equations: $a(x+b) = c$

Chapter 11 Probability

- 11.1 Determining Probabilities Using Tree Diagrams and Tables
- 11.2 Outcomes of Independent Events
- 11.3 Determining Probabilities Using Fractions

Chapter 12 Tessellations

- 12.1 Exploring Tessellations With Regular and Irregular Polygons
- 12.2 Constructing Tessellations Using Translations and Reflections
- 12.3 Constructing Tessellations Using Rotations
- 12.4 Creating Escher-Style Tessellations

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MATHLINKS

REVIEWERS

Student Resource Highlights

Easy-to-follow, 3-part Instructional Design

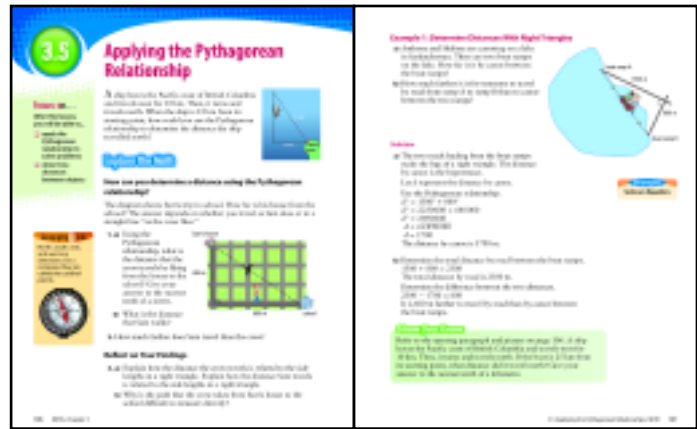
- Provides routine and structure to your grade 8 classroom
- Engages visual learners through exciting and colourful images, illustrations, and diagrams

1. Explore the Math

- **Explore the Math** allows students to construct their own learning through a hands-on or minds-on activity
- **Examples** and **Worked Solutions** demonstrate how to use the concept
- **Show You Know!** helps students check that they understand the skill covered in the Example



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Pages 106-107

2. Key Ideas

- Summarize the main concepts of the lesson for students
- Use text, symbolic representation, and visuals, as appropriate

Communicate the Ideas

- Provide opportunities for students to think about, talk about, and write about their learning

3. Check Your Understanding

Practise

- Check students' understanding of what they have learned

Apply

- Provide applications of the skill in a different context

Extend

- May be a little more challenging
- May extend the concept horizontally



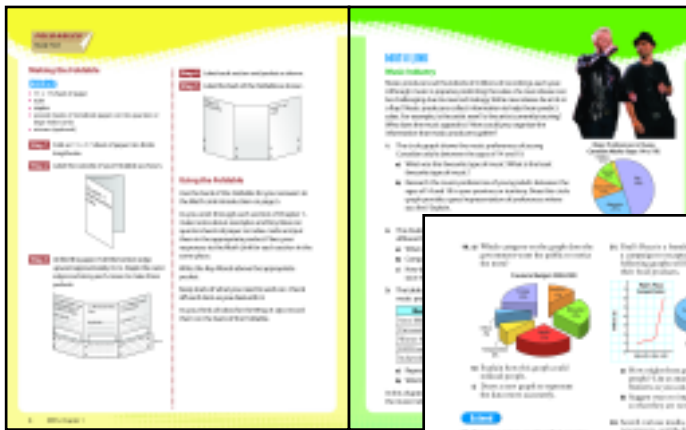
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Student Resource Highlights

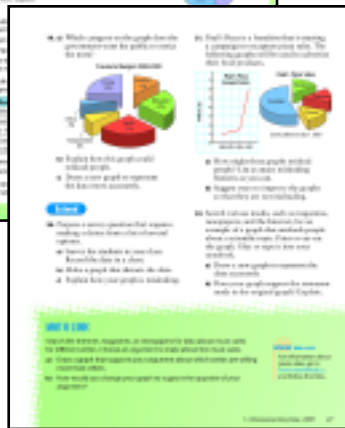
Support for All Students

- **Variety and choice** enable you to strike the right balance for your students
- **Real-life, meaningful contexts** to motivate and engage students
- **Accessible, age-appropriate reading level**

1. Variety



Pages 4-5

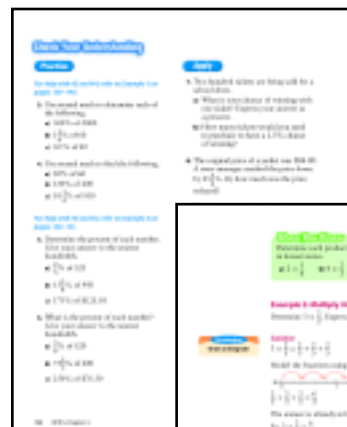


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2. Choice

- **Explore the Math** is designed to help students build their own understanding of a new concept. These provide a hands-on or minds-on activity
- **Practise/Apply/Extend** sections offer multiple questions from which to select
- **The Examples** and **Worked solutions** help students by providing:
 - **Notes** in thought or speech bubbles
 - **Different methods** of solving the same problem. One way may make more sense to one student than another
 - **Problem Solving** strategies

- **Math Links** pose a Chapter Problem that connects math to the students' world
- Throughout the chapter, **Math Links** questions build towards completing the Chapter Problem that the **Wrap It Up!** provides
- **Foldables** serve as interactive graphic organizers, hands-on manipulatives, reading, and study skills strategies
- **Visuals and graphics** that illustrate how to carry out explorations accompany instructions
- **Literacy Links** provide students with strategies for how to read and understand mathematical language



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Student Resource Highlights

A Variety of Assessment Strategies & Tools

- Accommodates the broad range of students' abilities and learning styles
- Assessment opportunities are integrated into every lesson

1. Assessment for Learning (Formative)

- **Communicate the Ideas** questions provide opportunities to determine students' understanding of concepts through conversations and/or written work
- Students can use the **Practise** assignments in each section to check their understanding
- **Chapter Reviews** and **Cumulative Chapter Reviews** provide opportunities to assess knowledge/understanding applications, communications, mental math, and problem solving



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2. Assessment as Learning (Reflective)

- **Reflect on Your Findings** encourages students to clarify their thinking
- **Show You Know** questions enable students to check their understanding before moving forward
- The warm-up exercise, journaling questions, and **Math Learning Log** suggestions in The Teacher's Resource provide additional support in identifying and facilitating student learning

2. Assessment of Learning (Summative)

- **Practice Tests** are provided at the end of the chapters in the student resource, and **Chapter Tests** are provided in the Teacher's Resource
- **Wrap It Ups!** allow for performance-based assessment that can be used as an alternative to a chapter test
- A **Task** is included after each cumulative review. **Exemplars** and an alternative task are available on the Online Learning Centre. Rubric notes are in the Teacher's Resource

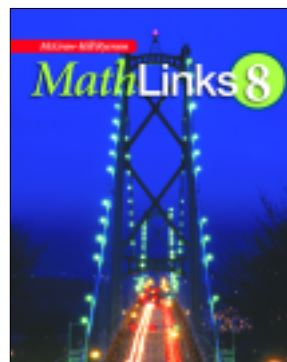


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Program Components

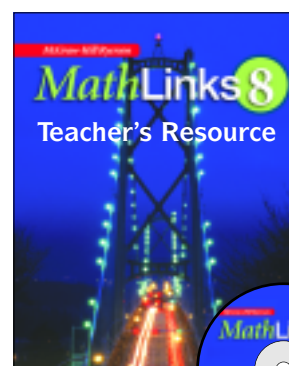
Student Resource 9780070973381

- Built on principles of effective practice and on research about how early adolescents learn
- Instructional model and assessment techniques accommodate the diverse needs of students
- Accessible, age-appropriate reading level



Teacher's Resource 9780070973527

- **NEW! A detailed fold-out Planning Chart at the beginning of each chapter.** Provides teachers with a single location to find an outline of the chapter work and content, including the outcomes, prerequisite skills, materials/technology, blackline masters list, exercise guide, extra support information, and assessment suggestions
- **NEW! Literacy Link Boxes:** Emphasize suggestions for developing students' math literacy
- **NEW! Math Link Introduction Blackline Master:** Could be used for a diagnostic assessment or to activate student prior knowledge about the skills and processes that will be covered in the chapter
- **NEW! Problems of the Week Blackline Masters:** Provide additional support for many types of learners, as well as encourages students to think outside the box and experiment with a variety of approaches
- **Teaching suggestions and Planning Notes** for all lessons
- **Strategies and Blackline Master support** for accommodating different learning styles, special needs, English Language Learners, and at-risk students.
- Includes a **CD-ROM** with **modifiable Blackline Masters, Rubric, Extra Practice, and Alternative Chapter Tests.**
- The **Teacher's Resource** is also **provided electronically** in the Teacher Centre at www.mathlinks.ca



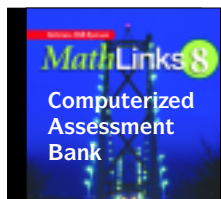
MATHLINKS

PROGRAM
COMPONENTS

Program Components

Computerized Assessment Bank

9780070977594



- **Over 1000 additional questions** in multiple formats including Multiple Choice, Matching, Completion, Short Answer, and Problems
- **Answers** are included
- **Chapters correspond with the student text** to support ease of use
- **Uses teacher friendly ExamView® software**

Solutions CD-ROM

9780070977587

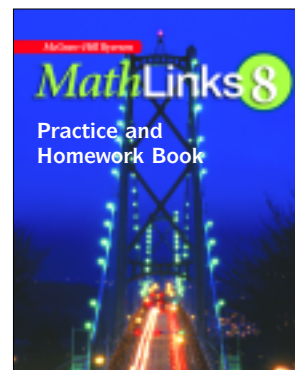


- **Fully worked solutions** for all text exercises, as well as for questions in the chapter review, practice test, and cumulative review features

Practice and Homework Book

978007093428

- **An affordable, consumable workbook** to provide extra support
- **Chapters correspond with the student text** to support ease of use



Adapted Program

- Retains the learning outcomes of the prescribed curriculum; however, adjustments to the instructional design are provided to **address the special needs of the struggling student**
- 3-ring binder format with approximately 500 Student worksheets provided in hard copy and on a CD-ROM, which will **allow teachers to make modifications**
- Includes a **separate Teacher's Resource** with **teaching notes and additional Blackline Masters**
- Authored by **Carol Klass**, author of *MathPower Modified Program*, this new Adapted Program is **a resource to accompany MathLinks, organized to parallel the MathLinks lessons.**
- **One program per grade 7, 8, and 9**

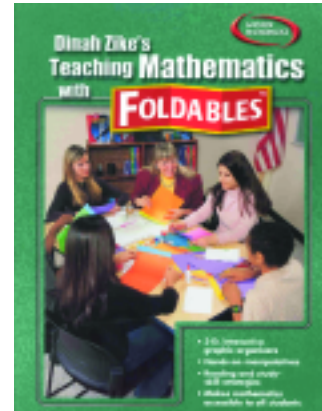
Program Components

Foldables™

Dinah Zike's Teaching Mathematics with Foldables

007830413X

- Offers guidelines for using 3D, student-made interactive graphic organizers in your mathematics classroom
- Outlines how reading, writing, and thinking skills can be integrated into the curriculum using Foldables™



Online Learning Centre

www.mathlinks.ca



Student Centre

- Study Tips for Students
- Game Web Links
- Math Games related to the chapter content
- Project ideas
- General Relevant Web Links
- Study Quizzes
- Interactive Crossword Puzzles
- Student Text Glossary
- Hands-on Activities
- Applets

Teacher Centre

- MathLinks 8 Time Frames
- List of Materials Needed to teach MathLinks 8
- Web Links from MathLinks 8 Teacher's Resource
- Combined Grades Plan
- Any needed Blackline Masters for the games in MathLinks 8
- Student Resource Answers and Practice and Homework Book Answers
- Warm-up Blackline Masters
- Get Ready Blackline Masters
- Game Web Links
- General Relevant Web Links
- Study Quizzes
- Interactive Crossword Puzzles
- Student Text Glossary
- Alternative Year End Tests
- Rubrics and Student Exemplars
- Alternative Tasks and Challenges
- Hands-on Activities
- Applets
- Curriculum Correlation
- **Professional Development Services** including: video clips, Ask an Author, Conference and Workshop Schedule, and much more!

Dedicated to ...

...Students

MathLinks 7-9: Dedicated to Meeting the Diverse Needs of Grades 7-9 Students by:

- **Consistent, easy-to-follow, 3-part lesson design**
- **Accessible, age-appropriate reading** with real-life contexts to motivate and engage students
- **Mathematics literacy support** through Literacy Link boxes and listing Key Words on the Chapter Opener, bolding and highlighting them when first used in the text, and defining them in the margin
- **Excellent visuals and multiple representations of concepts** and instructions
- **Multiple worked examples and referenced examples** within the Check Your Understanding
- Extend questions and extra difficult questions in the Computerized Assessment Bank provide **additional challenges for gifted learners**
- **Practice and Homework Book** to provide extra support
- **An Adapted Program** to support struggling and at-risk learners

...Teachers

MathLinks 7-9: Dedicated to Meeting the Diverse Needs of Grades 7-9 Teachers by:

- **A detailed fold-out Planning Chart** at the beginning of each chapter in the Teacher's Resource
- **Strategies and Blackline Master support** for accommodating different learning styles, special needs, English Language Learners, and at-risk students.
- **CD-ROM** with modifiable Blackline Masters, Rubrics, Extra Practice, and Alternate Chapter Tests, as well as PDFs of the entire Teacher's Resource
- **Web site (www.mathlinks.ca)** providing Blackline Masters, web links, quizzes, tests, rubrics and student exemplars, as well as an opportunity to Ask an Author questions pertaining to the program
- **Inservice and workshops** to support implementation of the *MathLinks* program

Curriculum Overview

Grade 8 Mathematics Curriculum Changes

WNCP 1995	WNCP 2006
Grade 8 Number Concepts Patterns and Relations Shape and Space Statistics and Probability	Grade 8 Numbers Patterns and Relations Shape and Space Statistics and Probability

Deleted Topics

- Addition & subtraction of fractions (*moved to Grade 7*)
- Exponents (*moved to Grade 9*)
- Rational numbers and rational number operations (*moved to Grade 9*)
- Generalize patterns using expressions and equations (*moved to Grade 9*)
- Interpolation & extrapolation (*moved to Grade 9*)
- Create and solve first degree equations
- Surface area of 3-D composite figures (*moved to Grade 9*)
- Volume of 3-D composite figures
- Area of 2-D composite shapes
- Properties of quadrilaterals (*sides & angles - moved to Grade 6*)
- Colouring problems
- Enlargements and reductions (*moved to Grade 9*)
- Network problems
- Scale diagrams (*moved to Grade 9*)
- Data collection methods (*moved to Grade 9*)
- Formulating questions (*moved to Grade 9*)
- Measures of central tendency (*moved to Grade 7*)
- Measures of variability
- Outliers and their effects on measures of central tendency (*moved to Grade 7*)
- Computer or other simulation methods
- Predict population characteristics from sample data
- Theoretical probability calculations (*single events - moved to Grades 6 & 7*)

New Topics

- Surface area of triangular prisms
- Sketch 3-D solids with & without grids (*moved from Grade 6*)
- Build 3-D objects from nets (*right rectangular prisms - moved from Grade 6*)
- Tessellations (*moved from Grade 5*)
- Views, top, front, side (*moved from Grade 9*)

Overall change from 1995 to 2006: 66%



Here are just some of the Schools/Boards that have adopted *MathLinks 7*



Available NOW!



Available 2008



Available 2009

- Dea/Netsilik School, NU
- General Wolfe Elem. School, SD 39, BC
- Holy Cross Elem. School, BC
- John A. Hutton Elem. School, SD 51, BC
- Laurie Middle School, SD 5, BC
- Lord Kelvin Elementary School, New Westminster, BC
- Mulgrave School, West Vancouver, BC
- St. Patrick's Catholic School, Victoria, BC
- Assumption Jr/Sr High School, Lakeland RCSSD, AB
- Caledonia Park School, Black Gold Regional Division, AB
- Crestwood School, Edmonton Public, AB
- Crossing Park School, Calgary, AB
- Dr. Gordon Higgins Jr. High, Calgary, AB
- Ernest Morrow Jr. High, Calgary, AB
- Foothills School Division, AB
- Gerard Redmond, Evergreen CSRD, AB
- Heritage Heights, AB
- High Prairie School District, AB - Board-wide
- Hillside Jr/Sr High, Northern Gateway Regional Division, AB
- Holy Redeemer Jr/Sr High School, Living Waters CRD, AB
- Okotoks Jr. High, AB
- Percy Baxter School, Northern Gateway Regional Division, AB
- Queen Elizabeth Jr. Sr. High, Calgary, AB
- Red Deer Public Schools, AB - Board-wide
- Riverview Middle School, Black Gold Regional Division, AB
- St. Rose School, Edmonton Catholic, AB
- Terry Fox Jr. High, Calgary, AB
- Vernon Barford School, Edmonton Public, AB
- Victoria School, Edmonton Public, AB
- Westlawn School, Edmonton Public, AB
- Woodhaven Junior High, Parkland School District, AB
- Christ the Teacher RCSSD, SK
- Delisle Composit School, Prairie Spirit, SK
- General Wolfe School, Winnipeg 1, MB
- H.S Paul School, Louis Riel School District, MB
- MacKenzie Middle School, Mountain View School District, MB
- Oscar Blackburn School, Frontier School District, MB
- St. John's Ravenscourt, Private, Winnipeg, MB

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