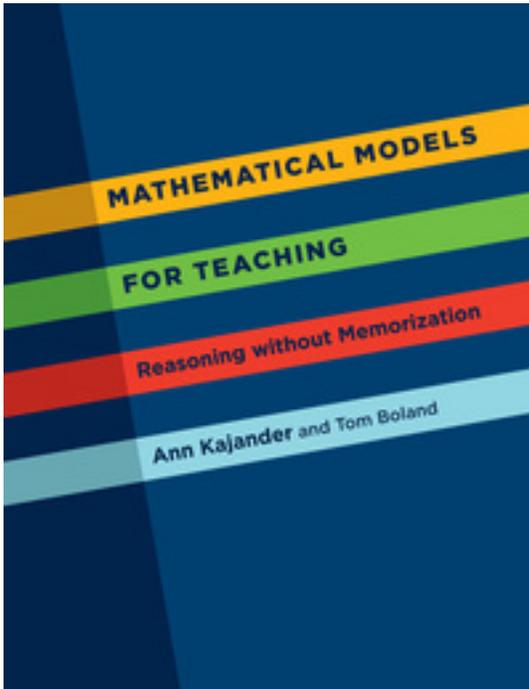


Mathematical Models for Teaching

Reasoning without Memorization



Subjects

Education

260 pages

8.5 x 11 inches

December 2013

ISBN: 9781551305561

Available at:

<https://www.canadianscholars.ca/books/mathematical-models-for-teaching>

To request a review copy:

info@canadianscholars.ca

416-929-2774

Students of mathematics learn best when taught by a teacher with a deep and conceptual understanding of the fundamentals of mathematics. In *Mathematical Models for Teaching*, Ann Kajander and Tom Boland argue that teachers must be equipped with a knowledge of mathematics for teaching, which is grounded in modelling, reasoning, and problem-based learning. A comprehensive exploration of models and concepts, this book promotes an understanding of the material that goes beyond memorization and recitation, which begins with effective teaching.

This vital resource is divided into 15 chapters, each of which addresses a specific mathematical concept. Focusing on areas that have been identified as problematic for teachers and students, *Mathematical Models for Teaching* equips teachers with a different type of mathematical understanding—one that supports and encourages student development. Features:

- grounded in the most current research about teachers' learning
- contains cross-chapter connections that identify common ideas
- includes chapter concluding discussion questions that encourage critical thinking
- incorporates figures and diagrams that simplify and solidify important mathematical concepts
- offers further reading suggestions for instructors seeking additional information

Author Information

Ann Kajander

Ann Kajander is an experienced classroom teacher who is currently an Associate Professor in the Faculty of Education at Lakehead University. She is the author of two previous books of creative mathematical activities for children. Her research interests include mathematics education, pre-service education, teacher mathematics knowledge, the development of mathematics for teaching, and teacher beliefs.

Tom Boland

Tom Boland is currently a Special Education Facilitator for Lakehead Public Schools, where he has taught grades 3 to 8. He has also been a professional learning consultant in mathematics for school boards across Canada, a provincial math coach for the Ontario Ministry of Education, and an instructor in the Faculty of Education at Lakehead University.

Reviews

"This book incorporates the latest research on how children learn mathematics. It fully embraces the idea that teachers learn mathematics best when framed in the context of their future role as teachers. It sends a strong message about the importance of developing conceptual understanding rather than encouraging rote memorization."— Susan Oesterle, Department of Mathematics, Douglas College

Table of Contents

Preface
Acknowledgements
Chapter 1: Introduction to Mathematics for Teaching
Chapter 2: Introduction to Mathematical Reasoning
Chapter 3: Introduction to Numbers
Chapter 4: Whole Number Addition and Subtraction
Chapter 5: Whole Number Multiplication and Division
Chapter 6: Fraction Representations and Additive Operations
Chapter 7: Multiplicative Fraction Representations and Operations
Chapter 8: Decimal and Percent Representations and Operations
Chapter 9: Integer Representations and Operations
Chapter 10: Beyond Integers
Chapter 11: From Patterns to Algebra
Chapter 12: Algebraic Concepts
Chapter 13: Geometry
Chapter 14: Measurement
Chapter 15: Data Management and Probability
References
Glossary

Related Books

Canadian Curriculum Studies
Erika Hasebe-Ludt, Carl Leggo