

Preface

The purpose of this text is to offer you, a secondary mathematics teacher, insight into effective literacy instruction with concrete ideas for incorporating reading, writing, speaking, listening, and vocabulary learning in authentic ways into the weekly rhythm of your math courses. This book is not about starting over; rather, it is about efficiently and effectively layering intentional disciplinary literacy instruction into your already fine math teaching.

The first two chapters provide the big picture:

- Chapter 1 looks at why literacy is important to all learners and what literacy entails, and it offers an overview of disciplinary literacy in mathematics.
- Chapter 2 considers how teachers can apprentice students in new skills, literacy and others, through workshop model instruction, with mini-lessons to model thinking and extended student work time in which learners take responsibility for honing their mathematical and literacy skills.

The remaining chapters are devoted to the theory and practice of teaching specific components of literacy within a math workshop:

- Chapter 3: Reading
- Chapter 4: Vocabulary
- Chapter 5: Discourse
- Chapter 6: Writing

Most chapters include classroom examples, research summaries, sample lesson plans, graphic organizers, rubrics, and questions to ponder. Some planning templates and other materials are also available online for the reader's personal or classroom use; just go to nctm.org/more4u and enter the access code that appears on the title page of this book.

The conclusion ties up loose ends and offers some starting points for putting this work into practice.

How to Use This Book

Whether you are new to teaching or a veteran brushing up, this book can offer you a variety of practical ideas to implement right away. For best results, read it with a colleague or study group so that you can discuss the possibilities together, test-drive some, and report back on the outcomes. While I encourage you to read it from cover to cover, time may necessitate that you start someplace in the middle, perhaps exploring the vocabulary chapter first, to jump-start the year with some new word-learning routines. That approach will work, since each chapter can stand alone. My hope is that you eventually will find time to read all the chapters, so that your students can benefit from a balanced diet of literacy instruction integrated into their math learning.

About Me

When I first started teaching middle school math and science, I didn't know anything about literacy instruction, and I pretty quickly figured out that this was a problem. I found myself doing the darndest things: reading the math textbook aloud to the class; scratching wordy problems off the homework; wishing, when it came time for the state test, that I had done a better job teaching students to read and write as mathematicians. Here began my quest to understand the interrelationship between literacy and mathematics. I worked on teaching learners to read word problems, to write about graphs, and to talk through their thinking at the board, and soon the culture of my classroom—and the achievement of even my struggling students—began to shift. We all felt much more capable.

After a decade of working directly with students, I have spent the past ten years teaching teachers. I currently serve as Education Senior Director for the Denver-based Public Education & Business Coalition (PEBC), where my work often includes interpreting the organization's rich history in and deep knowledge of literacy instruction for my math and science teacher peers.

For a number of years, I designed and taught a graduate literacy course for Teach for America's secondary math and science teachers in Colorado. As an instructional coach, I devote time to observing in classrooms and coaching teachers; as a professor of math and science methods for preservice teachers in the Boettcher Teacher Residency, I explore with them how we can promote all learners' confidence and competence as mathematicians and scientists; as a designer of teacher professional development workshops, I strive to model and teach effective pedagogy in accessible ways. Through this work, I have gained a deep understanding of how we can best serve learners in their journey to make meaning of mathematics.

My previous books, *Science as Thinking: The Constants and Variables of Inquiry Teaching, Grades 5–10* (2009) and *Minds on Mathematics: Using Math Workshop to Develop Deep Understanding in Grades 4–8* (2012) offer practical approaches to teaching for understanding in each of those content areas. The book in your hands represents a synthesis of what I have learned and taught specifically about integrating literacy into secondary mathematics instruction.

Never was I more struck by the importance of drawing literacy instruction into mathematics teaching than when my own daughter, as a fifth grader, shoved her math homework at me across the breakfast counter, exclaiming, "I don't get this!" Nothing she knew about decoding text as a reader occurred to her when confronted with a word problem related to fractions. We talked through the need to read as a mathematician. No one had explained this to her, which did not surprise me, but I wished it had. Kids need us to help them understand—with explicit conversation—how the literacy skills that they already have apply in math, as well as—with explicit instruction—how to master the literacy unique to mathematicians.

As you embrace the challenge of becoming an exceptional math teacher by honing your craft as a literacy instructor, I invite you to take all the ideas and suggestions in this book and make them your own: Mix and match and modify them to meet your students' needs and your instructional purposes. If what you develop helps your students to read, write, and speak independently as mathematicians, understanding concepts and communicating ideas, you are feeding two birds—mathematics and literacy—with one piece of bread. I wish you and your students every success.