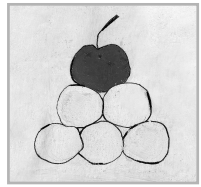

Introduction

If you have been successful in teaching children to read and write, you have the skills, tools, and strategies you need to succeed in teaching children math. If you are a great language teacher, you can be a great math teacher, too. Though they may seem to come from Venus and Mars, mathematics and literacy are as alike as they are different. We read, write, and think mathematically to make sense of the world we live in, and to see, express, and celebrate its beauty. They are languages we speak, and while they may both be inscribed on paper, they both unfold in the thinker's mind.

This book explores how effective teaching of math looks a lot like effective teaching of literacy. It is also about what math teachers can learn from literacy teaching. First, look at how the fundamental bits and pieces of mathematics and literacy, numerals and letters, are alike. In both cases, these marks on paper carry specific meanings to be decoded. Because the languages of mathematics and literacy both have written codes to be read, we can use what we know about decoding words, such as drawing on context, to help our young mathematicians make sense of numbers. Vocabulary and fluency, key to success in literacy, also play significant parts as young learners break the written mathematics code.

What you know about reading comprehension is especially useful in teaching and learning mathematics. While literacy and mathematics both depend on the learner's ability to decode symbols, why bother unless the results are meaningful? Contrary to the classic

From Reading to Math: How Best Practices in Literacy Can Make You a Better Math Teacher, Grades K–5

saying *Yours is not to question why; just invert and multiply,* it is not enough to invert and multiply—we need to reason why. Recent work in reading comprehension by scores of literacy educators provides math teachers with valuable strategies for digging deeply into mathematics meaning. By explicitly teaching students to use such powerful cognitive tools as predicting, questioning, inferring, and synthesizing to comprehend the mathematics they are learning, we help them deepen their mathematical understanding.

The pedagogical approaches you use to teach literacy can also maximize mathematics learning. First, the ways effective literacy teachers organize their classrooms for successful reading and writing instruction offer powerful strategies to math teachers. Print-rich environments, daily practice in reading and writing, and integration of literacy activities into the life of the classroom are all practices that math teachers can borrow. In addition, the workshop model, an effective structure for teaching and learning reading and writing, has much to share with the math class. The thinking literacy teachers have done about direct instruction, small-group work, guided reading, and independent practice in reading and writing can help math teachers structure powerful lessons that are relevant, challenging, and engaging to students.

Literacy teachers have also developed practical and effective strategies for assessment that math teachers can learn from. Look at two significant contributions especially useful for math teachers: running records (which give us a glimpse into what a reader is doing as she reads) and conferring (which helps us see what readers and writers are thinking about). After all, though we do care what a child's answer to a math problem is, what we really need to know is how he arrived at it and how he was thinking about the question. We benefit from sitting by students and recording what they are doing in mathematics and by talking with them about how they decide to do it.

Finally, reading teachers have a lot to teach math teachers about helping struggling learners. At the top of the list is a commitment to helping all children succeed. When we are teaching mathematics, we need to be sure we have that same commitment and are not secretly subscribing to a belief in the missing math gene.

Of course, in most elementary classrooms these literacy and math teachers are one and the same person. This is me, the literacy teacher,

and now here I am, the math teacher. Yet sometimes it does feel like we are taking off the literacy hat to put on the math cap when we shift from one subject to another. This book suggests that this shift is not as dramatic as it sometimes seems, and that we can bring much of what makes us great at teaching reading and writing to our teaching of math.

Over all, this book is about teaching. But it is also about thinking. It is concerned with the kinds of thinking learners do when they engage in reading, writing, and mathematics as well as the kinds of thinking teachers do to understand our subjects, our students, and our craft.

This book is ultimately about learning. It looks at how students learn, and how we, as teachers, can nurture their potential. It is also about our learning, which means questioning what we think about literacy, teaching, and mathematics, looking at how the teaching and learning of these topics overlap, and learning how we can bring our strengths as reading and writing teachers into the math class.