

## Preface



*Teaching Mathematics to Students with Learning Disabilities* is a professional resource for teachers at the elementary and middle school levels who teach students with learning disabilities. Now in its fourth edition, this resource has been written with the belief that, though they learn differently, most students with learning disabilities can master important mathematical concepts and skills, can apply them in their day-to-day lives, and will use them to advantage in their future careers. This belief has evolved out of our personal experiences with students having learning disabilities that affect mathematics learning and achievement, and has molded the way in which our ideas for mathematics instruction have been developed and refined.

It has been said that to help students grow we must allow them to grapple with concepts and ideas that are *just beyond* their reach. Interactions with teachers who have used earlier editions of this book suggest that alternative approaches and sequences like those in this book are very useful for helping students learn important mathematical concepts and skills—even those that are seemingly *just beyond* their reach.

This fourth edition, consistent with recommendations in *Principles and Standards for School Mathematics* (National Council of Teachers of Mathematics, 2000), continues to emphasize problem solving, number sense, student decision making, and ways of effectively incorporating technology in mathematics instruction—from calculators and computer spreadsheets to the use of selected Web sites and computer software. Specifically, we explore strategies for helping students become more successful mathematical thinkers. A further reorganization of chapters in this edition and the presentation of alternative learning sequences accommodates a greater focus on concept development and applications. Also, the diagrams and figures have been updated and improved.

We recognize how critical it is in daily situations to be able to determine and use efficient methods of solving a quantitative or data-based problem and to recognize whether results are reasonable. These ideas underlie our analysis of instructional modifications that are sometimes necessary to meet and accommodate our students' special learning needs. Rather than treating all topics in the school mathematics curriculum comprehensively, we have chosen to focus on mathematics topics that can or do cause the most difficulty for students with learning disabilities.

For each major topic addressed, we provide background information that summarizes standard approaches and points out particular problems that students with learning disabilities may encounter with a given mathematics concept or application. Then we present at least one sample sequence of suggested learning activities to highlight the fact that instructional alternatives are often necessary to meet the needs of students with specific learning disabilities. The assumption is that teachers are familiar with standard approaches to handling the topics.

Previous editions have presented a variety of instructional adaptations that teachers can use or share with students to make them more successful in mathematics within the parameters of their specific limitations. Methods such as color coding, organizing file pages spatially, previewing, and getting students to restate or otherwise communicate their understanding of an important mathematical idea or procedure are among the many modifications used in the sample learning sequences in this book. Students with learning disabilities, like many other students, need to communicate their understanding actively—verbally, in writing, or by some form of demonstration—in order to internalize and remember. This idea is recognized as an important one and is interwoven consistently in the learning sequences presented in this edition.

Our overriding goal is to help students learn to compensate for their learning disabilities and to deal effectively with mathematics both in academic and everyday situations. Any inspiration we can provide toward accomplishing this goal comes primarily from the students with whom we have worked and from whom we have learned.

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