Introduction

Research and Standards

Research studies have shown that measurement is one of the mathematical skills that students with learning differences have difficulty with throughout their elementary and secondary school years (McLeod & Armstrong, 1982). *Basic Math Practice 3: Measurement* was designed to promote success for students of all levels.

Each unit includes a pattern for a hands-on manipulative for students to use as they complete the subsequent worksheets. These manipulatives make learning the abstract concepts of measurement concrete. As Sousa states, "Students with special needs who use manipulatives in their mathematics classes outperform similar students who do not. Manipulatives support the tactile and spatial reinforcement of mathematical concepts, maintain focus, and help students develop the cognitive structures necessary for understanding arithmetic relationships" (2001).

Many of the suggested activities in this book also include hands-on, student-led experiments that guide students to make the real-world connections necessary for lasting learning. Garnett explains, "Many children experience difficulty bridging informal math knowledge to formal school math. To build these connections takes time, experiences, and carefully guided instruction. The use of structured, concrete materials is important to securing these links, not only in the early elementary grades, but also during concept development stages of higher-level math" (1998).

Multiple activities and worksheets are included to teach and reinforce each skill, allowing students to truly master the five areas of measurement presented. Jones, Wilson, and Bhojwani note, "Practice activities are essential components of mathematics instuctional programs. Students with LD will generally need more practice and practice that is better designed than students without LD, if they are to achieve adequate levels of fluency and retention" (1997).

Basic Math Practice 3: Measurement meets both state and national standards (including the National Council of Teachers of Mathematics Standards 2000 Project) regarding measurement, estimation, and mathematical connections. As students complete the activities in this book, they will:

- learn and use units, systems, and processes of measurement.
- identify appropriate units and tools of measurement.
- recognize the importance of standard units of measurement.
- estimate measurements and then verify their own estimates.
- identify real-world applications for various forms of measurement.

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McLeod, T. M., & Armstrong, S. W. (1982). Learning disabilities in mathematics: Skill deficits and remedial approaches at the intermediate and secondary level. *Learning Disability Quarterly, 5*, 305–311.

Sousa, D. A. (2001). *How the Special Needs Brain Learns*. Thousand Oaks, CA: Corwin Press, Inc.