

## Research and Standards

Educators have long concluded that “ ‘not knowing basic math facts’ is a common and conspicuous difficulty, an impediment to higher-level math, and a corrosive influence on the self-confidence of students with learning disabilities. Research confirms that many of these students are seriously inefficient in calculating basic number facts” (Garnett, 1992). *Basic Math Practice: Number Operations* was designed to promote mastery of basic addition, subtraction, multiplication, and division.

For students with learning disabilities, “learning number facts is far more complex than just practicing them until they stick; learning them includes developing and employing a number of strategies for navigating the number system” (Garnett, 1992). *Basic Math Practice: Number Operations* includes multiple activities and worksheets that teach and reinforce each of the four basic number operations in ways that make them relevant and meaningful. The worksheets are designed to develop students’ number sense to enable them to “decompose numbers, use particular numbers as referents, solve problems using the relationships among operations, knowledge about the base-ten system, ... and have a disposition to make sense of numbers, problems, and results” (National Council of Teachers of Mathematics [NCTM] 2003).

The goal of *Basic Math Practice: Number Operations* is to improve struggling students’ computational fluency. Principles and Standards for School Mathematics by the NCTM states that “students should be able to perform computations in different ways, including mental calculations, estimation, and paper-and-pencil calculations using mathematically sound algorithms” (2003). The problems in *Basic Math Practice: Number Operations* address the four basic number operations progressively through a variety of formats, including concrete objects, pictorial representations, simple fact-operations, word problems, and real-world applications. Jones, Wilson, and Bhojwani (1997) noted, “Practice activities are essential components of mathematics instructional 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.” The activities included in the book have simple directions, low readability to minimize frustrations due to reading difficulties, reduced number of problems on the page, and examples to aid in understanding of the skills.

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continued

*Basic Math Practice: Number Operations* meets both state and national standards (including the National Council of Teachers of Mathematics Standards 2000 Project) regarding numbers, operations, problem solving, communication, and connections.

As students complete the activities in this book, they will

- have a clear understanding of numbers, ways to represent numbers, and the relationship among numbers in and of the various number systems,
- understand meanings and relationships of number operations,
- relate number concepts and use connections among mathematical ideas; and
- recognize and understand how mathematical ideas interconnect and build on one another to solve problems.

Garnett, K. (1992). Developing fluency with basic number facts: Intervention for students with learning disabilities.

*Division for Learning Disabilities Journal of CEC*. Retrieved September 21, 2005, from

[http://www.ldonline.org/ld\\_indepth/math\\_skills/garnett\\_ldrp.html](http://www.ldonline.org/ld_indepth/math_skills/garnett_ldrp.html)

Jones, E. D., Wilson, R., & Bhojwani, S. (1997). Mathematics instruction for secondary students with

learning disabilities. *Journal of Learning Disabilities*, 30(2), 151–163.

National Council of Teachers of Mathematics. (2003). *Principles and Standards for School Mathematics*.

Retrieved June 23, 2004, from <http://standards.nctm.org/document/chapter8/index.htm>