



## Class Syllabus

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### Course Title:

## MASTERING THE BASIC FACTS OF MULTIPLICATION AND DIVISION BY MENTAL COMPUTATION, PLACE VALUE AND TRADE FOR THE BASIC FACTS

### Course Foundation:

- ▶ **Common Core State Standards for Mathematics**, pages 23 through 29
- ▶ **Principles and Standards for School Mathematics, 2000**, pages 392, 394, 402
- ▶ Studies by Dossey and Cook, Hiebert, Thornton, and others. See research.

### Course Purpose: To teach:

- 1) the meanings of multiplication and division and their representations.
- 2) the problem solving approach for developing the thinking strategies students will use to master the basic facts by mental computation by mid-term third grade.
- 3) the trading process for multiplication and division, the language that clearly describes the trading process, and the algorithms representing the trading process.

**Study Guide:** X **MASTERING THE BASIC FACTS OF MULTIPLICATION AND DIVISION BY MENTAL COMPUTATION**

**Game Book:** X **SCOOBEE™ GAME BOOK FOR MASTERING THE BASIC FACTS OF MULTIPLICATION AND DIVISION BY MENTAL COMPUTATION**

**Modeling Tools:** X dot cards, connecting cubes, place-value mat and pieces

**Wallboards:** X Wall display where related facts are grouped by their thinking strategy.

### Learning Outcomes: By mid-term third grade, your students will:

- 1) know and demonstrate the meanings of the operations of multiplication and division.
- 2) represent the operations of multiplication and division using physical models, drawing set models, drawing on number lines, writing stories and equations.
- 3) know relations between numbers; know relations between operations.
- 4) use thinking strategies to name products and quotients by mental computation.
- 5) solve story problems easily and accurately.
- 6) use mathematical terminology to communicate mathematically.
- 7) demonstrate the meaning of trade on a place-value mat using place-value pieces.
- 8) write traditional algorithms representing the trading process for the basic facts.

**Course Length: One-day Workshop:** Course purpose number 1 and 2.

**Two-day Workshop:** Course purpose 1, 2, and 3.

**Who Should Attend:** Second, third, and fourth grade educators, special education teachers, teacher's aids, paraprofessionals, administrators

- *All educators whose students struggle with multiplication and division regardless of age or grade should attend this workshop.*

**Graduate Credit:** Minot State University, Minot, North Dakota

**Minot State  
UNIVERSITY**

With 15 contact hours, educators can receive one semester hour of graduate credit, Math 500, for \$50; CEU's, \$20.

- *Fee for graduate credit and CEU's are not a part of the workshop fee.*

**Optional Materials:** Price for the **Study Guide, Scoobie Game Book, and wall display** of the basic facts is \$53. These materials ensure your students will achieve basic fact mastery!

**Participants Bring:** ✓ 3 by 5 Cards (25) ✓ Popsicle Sticks (50)

✓ 2 inch three-ring binder if purchasing the study guide and game book