



Class Syllabus

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Course Title:

MASTERING THE BASIC FACTS OF ADDITION AND SUBTRACTION BY MENTAL COMPUTATION, PLACE VALUE AND TRADE FOR THE BASIC FACTS

Course Foundation:

- **Common Core State Standards for Mathematics**, pages 9 through 19
- **Principles and Standards for School Mathematics, 2000**, pages 392, 394, 402
- Studies by authors such as Ashcraft, Barnard, Broody, and Carpenter. See Research

Course Purpose: To teach:

- 1) the meanings of addition and subtraction 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 the end of second grade.
- 3) the meaning of place value, the trading process for addition and subtraction, the language of trade, and the algorithms representing the trading process.

Study Guide: X **MASTERING THE BASIC FACTS OF ADDITION AND SUBTRACTION BY MENTAL COMPUTATION**

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

Modeling Tools: X dot cards, five-frames, ten-frames, place-value mat and pieces, connecting cubes

Wallboards: X Wall display representing the thinking strategies for doubles added and subtracted.
 X Wall display where related basic facts are grouped by their thinking strategy.

Learning Outcomes: By the end of **second grade**, your students will:

- 1) know the meanings of the operations of addition and subtraction.
- 2) represent the operations of addition and subtraction using physical models, drawing set models, drawing on number lines, writing stories and equations.
- 3) look for, recognize, and use relations between numbers to solve problems.
- 4) use thinking strategies to name sums and differences 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: Kindergarten through second grade educators, special education teachers, teacher's aids, paraprofessionals, administrators

- *All educators whose students struggle with addition and subtraction 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 of the **Study Guide**, **Scoobie Game Book**, and **classroom wall display** of the doubles is \$63. Our materials and methods assure mastery of the basic facts!

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

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