



## Class Syllabus

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### Course Title:

## DEVELOPING NUMBER AND OPERATION SENSE USING DOT CARDS, FIVE- AND TEN-FRAMES

### Course Foundation:

- **Common Core State Standards for Mathematics**, pages 11 through 88
- **Principles and Standards for School Mathematics, 2000**, pages 392, 394, 396, 398, 400, 402
- Studies by authors such as Baroody, Hiebert, Clements, and others. See research.

**Course Purpose:** To teach fundamental math concepts using dot cards, five- and ten-frames.

**Modeling Tools:** ✕ 72 dot cards, 5 five-frames, and 12 ten-frames with **266 problem-solving activities** written on the backs of the cards; spiral bound five- and ten-frames with activity booklet

**Learning Outcomes:** With our dot cards, five- and ten-frames, and hands-on modeling methods, your students will:

- 1) know the meaning of numbers and the questions a number answers,
- 2) know the meaning of the word set and the three methods for representing a set of objects,
- 3) know the three classifications of numbers and how they are used,
- 4) know and model the three relations between any two numbers,
- 5) write number combinations for numbers through twenty,
- 6) know the meanings of the four operations and the three representations for each meaning,
- 7) count with understanding; count by 1's, 2's, 5's, 10's; count on; count back,
- 8) write or verbalize story problems, solve algebraic equations,
- 9) use the meanings of the operations to solve the 18 possible types of story problems,
- 10) demonstrate the meaning of place value in drawings and write numbers in expanded form,
- 11) recognize and represent the types of angles three dots form,
- 12) recognize, model, describe, and extend numerical patterns; write equations representing numerical patterns,
- 13) write equalities and inequalities representing relations between numbers,
- 14) recognize and represent slides, flips, turns; identify and represent symmetrical figures,
- 15) count money,
- 16) know and represent the magnitude of numbers on a number line,
- 17) understand the meaning of relative position of numbers on a number line, and
- 18) know the properties of the sets of numbers called natural numbers, whole numbers, odd numbers, even numbers, and fractions.

**Course Length:** **Half-day Workshop:** Selected concepts from the backs of the cards.

**One-day Workshop:** Selected concepts from the backs of the cards.

**Who Should Attend:** Kindergarten through third grade educators, special education teachers, teacher's aids, paraprofessionals • Forth grade educators are invited to attend.

**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:** The collection of 72 dot cards, 5 five-frames, 12 ten-frames, and the bound booklet of five- and ten-frames with an activity booklet is \$29.50. The materials are invaluable and we encourage each participant to purchase a set.

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