Class Syllabus

Course Title:

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Geometry for the 3rd and 4th Grade Student

Course Foundation:

- **Common Core State Standards for Mathematics,** pages 23 through 29
- **Principles and Standards for School Mathematics, 2000,** page 396, 402
- Studies by authors such as Burger, Clements, Van Hiele, and Van de Walle. See research.

Course Purpose: To teach fundamental geometric concepts using:

1) a **geometry dictionary** where terms are clearly defined, used in an example, and represented in a drawing.
2) a **workbook** that explores the concepts identified in the dictionary by asking students to draw with a protractor, ruler, or a template, construct with a compass and a straightedge, build on a geoboard, and make geometric figures from popsicle sticks, and paper.

Course Texts:

✘ Dictionary of Geometric Terms for The Elementary Student
- The dictionary is **nonconsumable** and will be used year after year.

✘ Geometry Workbook for The Elementary Student (consumable or nonconsumable)
- This workbook **teaches to the dictionary page by page**.

Drawing Tools: ✘ ruler, protractor, compass, template

Modeling Tools: ✘ geoboard, popsicle sticks, 3 by 5 cards

Learning Outcomes: With their dictionary and workbook, your students will:

1) learn **to measure** by drawing.
2) learn the **attributes** of a geometric figure by drawing the figure, building the figure on a geoboard, or making the figure out of popsicle sticks or 3 by 5 cards.
3) by drawing, see **relations** between one-, two-, and three-dimensional figures.
   Example: *Students will draw the representation of a ray. With a protractor, students will add a second ray to the first ray making a right angle. Students will join this right angle with asecond right angle making a square and then add squares to the first square making a cube. Students will* ***see*** *a cube is like a cube of sugar and not like a cube of butter.*
4) **draw** the representations of a line, line segment, and ray; use a **protractor** to draw the three relations that exist between any two lines; **draw with a protractor** and **construct with a compass** the five types of **angles**; draw, and construct **triangles**, **quadrilaterals** and other types of **polygons**; construct **circles**; use a **template** to draw the representation of the **solids** called a **cylinder**, **cone**, **prism**, **pyramid**, and **sphere**; build polygons and solids on a geoboard; make polygons and solids from popsicle sticks

Course Length: **One-day Workshop:** one-half of the dictionary and workbook will be covered
Two-day Workshop: entire dictionary and workbook will be covered

Who Should Attend: third and fourth grade educators and all support staff

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: Learning geometry depends on *doing geometry*; therefore, we encourage each participant to purchase the dictionary, workbook, protractor, compass, and template for $85.

Participants Bring: ✓ 3 by 5 Cards (50) ✓ Popsicle Sticks (125) ✓ Glue (liquid) ✓ Geoboard and geobands ✓ Scotch® tape ✓ Two, 2 inch three-ring binders if purchasing the dictionary and workbook