Saddlebrook Preparatory School

Mathematics Curriculum – Geometry

Saddlebrook Course Number: 36
Florida DOE Course Number: 1206310
Course Title: Geometry
Credit: 1.0

A. Major Concepts/Content.

The purpose of this course is to develop the geometric relationships and deductive strategies that can be used to solve a variety of real world and mathematical problems. The content will include, but not be limited to, the following:

- geometric constructions
- terminology and fundamental properties of geometry
- deductive and inductive reasoning and their application to formal and informal proof
- formulas pertaining to the measurement of plane and solid figures
- coordinate geometry and transformations on the coordinate plane
- exploration of geometric relationships such as parallelism, perpendicularity, congruence, and similarity
- properties of circles
- right triangle trigonometry

This course shall integrate Goal 3 Student Performance Standards of the Florida System of School Improvement and Accountability as appropriate for the content and processes of the subject matter.

B. Course Requirements

These requirements include the benchmarks from the Sunshine State Standards that are most relevant to this course as well as the standards established by the National Council of Teachers of Mathematics. The benchmarks printed in regular type are required for this course. **The portions printed in *italic type* are not required for this course. After successfully completing this course, the student will:**

1. **Demonstrate an understanding of the terminology and fundamental properties of geometry.**

    - MA.C.2.4.1 understand geometric concepts such as perpendicularity, parallelism, tangency, congruency, similarity, reflections, symmetry, and transformations including flips, slides, turns, enlargements, rotations, and fractals.

    - MA.C.2.4.2 analyze and apply geometric relationships involving planar cross-sections (the intersection of a plane and a three dimensional figure).

2. Demonstrate an understanding of deductive and inductive reasoning.

    - MA.C.1.4.1 use properties and relationships of geometric shapes to construct formal and informal proofs.

3. Demonstrate the ability to solve real-world problems by using geometric models and/or applying geometric properties.

    - MA.A.3.4.3 add, subtract, multiply, and divide real numbers, including square roots and exponents, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.

    - MA.A.4.4.1 use estimation strategies in complex situations to predict results and to check the reasonableness of results.

    - MA.B.1.4.1 use concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and three-dimensional shapes, including rectangular solids, cylinders, cones, and pyramids.

    - MA.B.1.4.2 use concrete and graphic models to derive formulas for finding *rate,* distance, *time,* angle measures, and arc lengths.

    - MA.B.1.4.3 relate the concepts of measurement to similarity and proportionality in real-world situations.

    - MA.B.2.4.1 select and use direct (measured) and indirect (not measured) methods of measurement as appropriate.

    - MA.B.3.4.1 solve real-world and mathematical problems involving estimates of measurements, including length, *time, weight/mass, temperature, money,* perimeter, area, and volume and estimate the effects of measurement errors on calculations.

- MA.C.3.4.1 represent and apply geometric properties and relationships to solve real-world and mathematical problems including ratio, proportion, and properties of right triangle trigonometry.

4. Demonstrate an understanding of transformational and coordinate geometry.

- MA.C.2.4.1 understand geometric concepts such as perpendicularity, parallelism, tangency, congruency, similarity, reflections, symmetry, and transformations including flips, slides, turns, enlargements, rotations, and fractals.

- MA.C.3.4.2 using a rectangular coordinate system (graph), apply and algebraically verify properties of two- *and three*-dimensional figures, including distance, midpoint, slope, parallelism, and perpendicularity.