Bow High School - Course Overview

Course Title: Integrated Geometry
Department: Mathematics
Credits: 1
Grades: 9-12

Course Description:

- At Bow High School, Integrated Geometry is the second of a sequence of three courses that will cover the curriculum of a traditional Algebra I, Geometry, and Algebra II sequence using a non-traditional approach. The philosophy of the sequence is that algebraic thought, geometric thought, and data analysis are naturally connected. Successful completion of the three-year sequence will prepare students to pursue Pre-Calculus. Integrated Geometry is a course in which students will study the relationships among shapes and solids with the primary focus on Euclidean geometry and coordinate geometry. Topics include perimeter, area, volume, probability topics, ratio and proportion, similarity, congruence, constructions, trigonometry, circles, properties of two and three dimensional shapes, and introductory logical reasoning. In addition, problem solving strategies, probability, and communication of mathematics in both written and oral form, and the appropriate use of technology such as graphing calculators, animations, and online simulations are strands which will permeate the entire course.

School Competencies:

- Writing (Communication - Foundational)
- Applied Mathematical Modeling (Problem Solving & Analysis - Foundational)
- Critical Thinking (Problem Solving & Analysis - Foundational)
- Interpretation (Problem Solving & Analysis - Foundational)
- Logical Processing (Problem Solving & Analysis - Foundational)
- Viable Technological Usage (Problem Solving & Analysis - Foundational)
- Cognitive Flexibility (Problem Solving & Analysis - Advanced)

Course Competencies:

- Polygons: Given a set of polygonal figures, classify and analyze each polygon to determine all spatial relationships.
- Similarity/Scaling & Congruence: Given a set of geometric figures, justify whether or not they are similar or congruent, and apply the appropriate properties to solve for unknown measurements.
- Right Triangle Trigonometry: Given conditions for a triangle, use the Pythagorean Theorem as well as trigonometric relationships to solve for unknown quantities.
- Circles: Given a set of circular regions, analyze each circle to determine all spatial

relationships.

- Volume, Lateral Area and Surface Area: Given real-world spatial problems, create geometric models that illustrate important dimensional relationships and apply the appropriate properties to formulate a solution for area or volume.
- Counting Techniques & Probability: Given sets of events, compose visual representations and assess their viability as accurate illustrations of the event(s). Given sets of events, predict the likelihood of a specified outcome.
- Logical Reasoning: Given a geometric scenario, construct a logical argument in the form of a coordinate proof, paragraph proof and/or formal two-column proof.