

High Bluff Academy
Integrated Math 2

Course Description

Integrated Math 2 is the second course of a three year college preparatory integrated math sequence. This course is a college prep course that meets the minimum graduation requirement for the state of California, and follows the Integrated Math Pathway in the Common Core State Standards. Geometric concepts from Math 1 are reinforced, with a stronger emphasis on proof, inductive reasoning, and their connection to algebra. The study of similarity leads to an understanding of right triangle trigonometry and connects to quadratics through Pythagorean relationships. The need for extending the set of rational numbers arises and real and complex numbers are introduced so that all quadratic equations can be solved. Circles, with their quadratic algebraic representations, round out the course. Students will be expected to work collaboratively, individually and demonstrate their learning through the Standards of Mathematical Practice. Students will be exposed to rich instruction that develop their conceptual understanding, procedural skill, problem solving skills, critical thinking abilities, and strengthen situational analysis abilities.

At the conclusion of this course, students will be proficient in the following topics:

- Geometric constructions
- Inductive and deductive reasoning
- Proving theorems about lines and angles, triangles, and quadrilaterals
- Properties of parallel and perpendicular lines
- Congruent triangles
- Properties of quadrilaterals
- Coordinate geometry
- Ratios, proportions, and similarity
- Right triangle trigonometry
- Circles
- Surface area and volume
- Properties of exponents, including rational exponents
- Polynomials and factoring
- Graphing quadratic functions and solving quadratic equations

This course is the 2nd year of a 3 year integrated mathematics series. These three courses incorporate a strategic interweaving of mathematics with authentic connections among theory and application, algorithm, and mathematical practices, designed to naturally scaffold the learning of a constantly deepening material. As a consequence, students increase understanding and recognize that all math is interrelated, purposeful and applicable. The purpose of the course is to formalize and extend the mathematics that students learned in middle school. The critical areas of focus, organized into modules, deepen and extend understanding of quadratic relationships, in part by contrasting them with linear and exponential models. Integrated Math II uses properties and theorems involving congruent figures to deepen, prove, and extend understanding of geometric knowledge from prior grades. There are modules in the course which ties together the algebraic and geometric ideas studied. The Mathematical Practice Standards apply throughout the course and together with the content standards provide students with a math experience that is coherent, useful, and logical. Students make use of their sense making in problem situations. The integrated math course prepares student to enroll in the next course in the sequence, Integrated Math III.