

WRHS Mathematics Curriculum Syllabus

Course Name: Math Connections I

Grade Level: 9

Course Description:

Math Connections I is the first year of a two-year math program that is designed to provide an introduction to the basic concepts of both algebra and geometry utilizing an integrated approach.

Links to Student Expectations:

- All students will develop skills to utilize technology to gather, to evaluate, to assimilate, and to present information.
- All students will utilize critical thinking skills to identify and to provide resources to solve a problem.
- All students will be able to make decisions and solve problems using logical processes (e.g., scientific method, induction, deduction, syllogism, etc.)
- All students will develop skills to promote a sense of confidence in tackling the rigors of standardized tests such as the required MCAS and optional AP, SAT.

Interdisciplinary Connections:

Math utilizes a variety of skills that have a direct relationship to other math courses and to science. Students must be able to apply numbers, such as fractions, that are used in everyday life. Students must be able to express math concepts and operations in both written and oral form using proper English. Students must be able to relate geometric concepts to the appreciation of art.

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- **Essential Concepts for Course**
 - Solving Basic Linear Equations
 - Operations with Integers
 - Ratios, Proportions, and Percents
 - Statistics and Probability
 - Geometry
 - Properties of Major Sets of Numbers
 - Operations with Fractions
 - Applications of Proportions and Percents
 - Irrational Numbers and the Pythagorean Theorem

 - **Student Objectives**
 - To solve two-step equations and inequalities
 - To evaluate algebraic expressions
 - To write algebraic expressions and equations from verbal phrases and sentences
 - To add, subtract, multiply, and divide integers

- To graph points on the number line and coordinate plane
- To solve proportions
- To express numbers as percents, decimals, and fractions
- To calculate measures of central tendency and variation
- To construct and interpret different kind of graphs
- To identify and use special pairs of angles
- To classify triangles and quadrilaterals and to apply their properties
- To calculate prime factorization, greatest common factor, least common multiple
- To identify and simplify rational numbers
- To add, subtract, multiply, and divide fractions
- To find areas of circles and polygons
- To solve word problems using proportions and percent equations
- To solve problems involving similar triangles and scale drawings
- To find square roots and to understand their connection with the real number system
- To learn and apply the Pythagorean Theorem
- **Suggestions for Instruction**
 - Lectures
 - Worksheets
 - Cooperative Learning
 - Technology
 - Hands-on mini-labs

IV. Suggestion for Assessment

- Written assessments with a variety of question types
- Projects on specific concepts
- Classroom presentations on specific questions, problems, or concepts
- Out-of-classroom assignments

V. Curriculum

- Equations and Inequalities
- Algebraic Expressions
- Integers
- Coordinate Plane
- Proportions
- Percents, Decimals, and Fractions
- Measures of Central Tendency and Variation
- Graphs
- Properties of Angles
- Properties of Polygons
- Number Patterns
- Rational Numbers
- Real Numbers

- Pythagorean Theorem

VI. Lesson Extensions

- Apply concepts of algebra and geometry by analyzing data and plotting hurricane positions.
- By following a particular stock, show how concepts of graphing and properties of fractions relate to common business practices.