MA289O/ Math 8.1 Syllabus

Course Title------ Math 8.1
Course Number------ MA289O
Grades:------ 08-08
High School Credit Value:------ 0
Prerequisites:------ Completion of seventh grade math.

Course Length:------ Regular courses: 17 weeks
CR: 9-17 weeks.

Course Time:------ Regular courses: 17 week schedule: 75 - 90 minutes per school day (6-7.5 hours per week)
Credit Retrieval: 75 - 90 minutes per school day (6-7.5 hours per week) until course completion.

{ Course Description }

Welcome to Math 8. This is a year long class with the first semester MTH289 and the second semester MTH290. It is recommended that students meet the Washington State seventh grade math standards before taking this course. Concepts covered in this course include: number sense, variables and expressions, equations, inequalities, exponents, scientific notation, ratios, rates and proportions, percents, multi step problem solving, interest, sequences, data analysis, and transforming formulas .

iA uses FuelEd curriculum as a math textbook. The student will work and complete lessons within their iA math course units and submit weekly assignments and quizzes.

The assigned math teacher will guide you through this math program as you complete lessons and the graded assignments. The math teacher will communicate with you by e-mail, online meetings, phone, and in person.

Course Materials:
A headset or speakers and microphone are needed for the required online meetings.

State Alignments
Washington State Standards guided the design of the course. Learning expectations are found within the course itself.

Common Core or Power Standard #	Description of Standard
8.NS.1	The Number System - Know that there are numbers that are not rational, and approximate them by rational numbers. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion

which repeats eventually into a rational number.

8.NS.2	The Number System - Know that there are numbers that are not rational, and approximate them by rational numbers. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., pi^2).
8.EE.1	Expressions and Equations - Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions.
8.EE.2	Expressions and Equations - Work with radicals and integer exponents. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that the square root of 2 is irrational.
8.EE.3	Expressions and Equations - Work with radicals and integer exponents. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.
8.EE.4	Expressions and Equations - Work with radicals and integer exponents. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
8.EE.5	Expressions and Equations - Understand the connections between proportional relationships, lines, and linear equations. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
8.EE.6	Expressions and Equations - Understand the connections between proportional relationships, lines, and linear equations. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.
8.EE.7.a	Expressions and Equations - Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable: Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation

into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).

8.EE.7.b	Expressions and Equations - Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8.EE.8.a	Expressions and Equations - Analyze and solve linear equations and pairs of simultaneous linear equations. Analyze and solve pairs of simultaneous linear equations: Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
8.EE.8.b	Expressions and Equations - Analyze and solve linear equations and pairs of simultaneous linear equations. Analyze and solve pairs of simultaneous linear equations: Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.
8.EE.8.c	Expressions and Equations - Analyze and solve linear equations and pairs of simultaneous linear equations. Analyze and solve pairs of simultaneous linear equations: Solve real-world and mathematical problems leading to two linear equations in two variables.
8.F.1	Functions - Define, evaluate, and compare functions. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
8.F.2	Functions - Define, evaluate, and compare functions. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
8.F.3	Functions - Define, evaluate, and compare functions. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
8.F.4	Functions - Use functions to model relationships between quantities. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

8.F.5	Functions - Use functions to model relationships between quantities. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
8.G.1.a	Geometry - Understand congruence and similarity using physical models, transparencies, or geometry software. Verify experimentally the properties of rotations, reflections, and translations: Lines are taken to lines, and line segments to line segments of the same length.
8.G.1.b	Geometry - Understand congruence and similarity using physical models, transparencies, or geometry software. Verify experimentally the properties of rotations, reflections, and translations: Angles are taken to angles of the same measure.
8.G.1.c	Geometry - Understand congruence and similarity using physical models, transparencies, or geometry software. Verify experimentally the properties of rotations, reflections, and translations: Parallel lines are taken to parallel lines.
8.G.2	Geometry - Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.3	Geometry - Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.4	Geometry - Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.5	Geometry - Understand congruence and similarity using physical models, transparencies, or geometry software. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
8.G.6	Geometry - Understand and apply the Pythagorean Theorem. Explain a proof of the Pythagorean Theorem and its converse.
8.G.7	Geometry - Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

8.G.8	Geometry - Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
8.G.9	Geometry - Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
8.SP.1	Statistics and Probability - Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.2	Statistics and Probability - Investigate patterns of association in bivariate data. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
8.SP.4	Statistics and Probability - Investigate patterns of association in bivariate data. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.

Course Outline

Unit	Time Frame
1 - Number Sense	1 Week
2 - Variables and Expressions	1 Week
3 - Properties of Numbers	1 Week
4 - Equations	1 Week
5 - Inequalities	1 Week
6 - Exponents	1 Week
7 - Scientific Notation	1 Week
8 - Fractions	1 Week
9 - Equations with Fractions and Decimals	1 Week
10 - Ratios, Rates and Proportions	1 Week
11 - Similarity and Scales	1 Week
12 - Percents and Equations	1 Week
13 - Solving Multi Step Equations	1 Week

14 - Solving Multi Step Inequalities	1 Week
15 - Simple and Compound Interest	1 Week
16 - Geometric and Arithmetic Sequences	1 Week
17 - Data Analysis	1 Week
18 - Transforming Formulas	1 Week

Course Work

The homework that is completed for this course is assigned on the student's Learning Plan Contract or pacing guide found in the student's Unit page. The Learning Plan Contract of 17 weeks is based upon the student's contracted start and end date.

This course currently covers 18 focus concepts each consisting of lessons, assignments, and quizzes. All of which will need to be completed and submitted.

The student will begin each focus concept or unit by going through the online lesson within the FuelEd text book. They will then complete a number of quizzes demonstrating their understanding of the skills addressed in the lesson.

Grading

Grades will be generated from the following:

Lesson Assignments - These formative assessments are found in each unit folder to be completed and submitted.

Lesson Quizzes - Lesson quizzes are found in each of the unit folders. Quizzes will include a combination of multiple choice and problem solving questions.

Revision Policy - The student's goal is to achieve a 70% or better on any assignment and quiz. A score less than a 70%, the student will have the opportunity to revise the work. It will be up to the student to revise the assignment or retake the quiz as the teacher will only recommend the revisions.

Grades - Grades are posted within the iA math course. Students can click on the Student Grades tab in their class to view their grade book. A student may view their grades on their home course page, but will need to remember to click refresh each time they want to view their current grade.

Occupational Credit:

This course may qualify for *occupational credit. Please consult your school counselor for further clarification.
*Please note that FLA901 (Sign Language) does not qualify for occupational credit.