

Math 6/7/8

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Course Description: Math 6-7-8 is an accelerated sixth grade course designed to prepare students for the rigor of Algebra I. This standards-based course completes the middle school curriculum's intent to help students make the transition from concrete arithmetic to abstract algebraic thinking. Math 6-7-8 includes pre-algebra concepts and skills that set high expectations for all students. It makes provisions for enrichment and acceleration for the advanced student. The course emphasizes algebraic thinking and applies it to other aspects of mathematics including geometry, measurement, probability, and statistics.

Course Content Standards/Objectives: The curriculum provides a complete correlation to the South Carolina Mathematics Curriculum Standards giving students a broad range of information from the following five strands of mathematics: Number and Operations, Algebra, Geometry, Measurement, Data Analysis and Probability. These concepts are taught in the context of real-world applications through the processes of problem solving, reasoning, communication, and connections, using appropriate manipulatives and technology. The primary text for this course will be the Glencoe South Carolina Pre-Algebra book. The Glencoe Course 1, 2, & 3 books will also be used to supplement the course content. By the end of the year sixth grade accelerated math students will complete a combination of the 6th, 7th, and 8th grade math standards that are outlined on pages two through six of this course syllabus.

MATERIALS: In addition to the materials listed on the sixth grade list, students will need the following:

- Marble Composition book
- TI-30 Calculator (optional)
- Quadrille graph paper

GRADING: As per district policy:

50% Major Assessments (tests and/or projects)

50% Minor Assessment

- 20% homework
 - 30% quizzes
- Three to four major tests each quarter.
 - Approximately five quizzes each quarter.
 - Homework will be assigned three to four days each week. All homework/class work must have the required work shown.
 - **All math assignments (homework, class work, quizzes, tests) must be completed in pencil.**
 - All notes must be kept in your "note-taker" composition book.
 - All warm-ups, homework, handouts, and returned papers should be kept in the math section of your binder. The math section of your binder should be cleaned out after each unit test.

CLASSROOM PROCEDURES: On most days, our classes will follow this progression: warm-ups, check homework, introduce new objective(s), practice, review the day's objective(s), and assign homework.

ABSENTEEISM: If a student is absent, it is the student's responsibility to check the assignment board/web site for missed work. Students should also check with a fellow classmate for missed notes, and other important announcements.

CLASS EXPECTATIONS: We, as teachers, have very high expectations for all our students. We believe that all students can learn, and we expect all our students to put forth their best effort each and every day. Students should come to class prepared with all materials and assignments on a daily basis. Each student should actively participate in class, and work to the best of their ability.

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1st Quarter		
<u>Unit</u>	<u>Title</u>	Tentative Time Frame
	Beginning of Year Procedures	2
1	Number Sense and Algebraic Thinking	10
2	Rational Conceptual Ideas	11
3	Integers	13
	MAP Testing	2
2nd Quarter		
<u>Unit</u>	<u>Title</u>	Tentative Time Frame
4	Operations with Rationals	14
5	Concepts Involving Exponents	9
6	Ratios and Proportions (2 parts)	26
	Benchmark Test and Review	3
3rd Quarter		
<u>Unit</u>	<u>Title</u>	Tentative Time Frame
7	Data Analysis	12
8	Probability	13
9	Algebraic Reasoning (2 parts)	9
	MAP Testing	2
4th Quarter		
<u>Unit</u>	<u>Title</u>	Tentative Time Frame
10	Measurement (3 parts)	29
11	Geometry	9
	Benchmark Test and Review	3
	Review for PASS Testing	2
	PASS Testing	5
	Extension and Enrichment	3
	Review & Final Exam	3

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	Standard	Description
	6-2.1	Understand whole-number percentages through 100.
	6-2.2	Understand integers.
	6-2.3	Compare rational numbers and whole-number percentages through 100 by using the symbols \leq , \geq , $<$, $>$, and $=$.
	6-2.4	Apply an algorithm to add and subtract fractions.
	6-2.5	Generate strategies to multiply and divide fractions and decimals.
	6-2.6	Understand the relationship between ratio/rate and multiplication/division.
	6-2.7	Apply strategies and procedures to determine values of powers of 10, up to 10^6 .
	6-2.8	Represent the prime factorization of numbers by using exponents.
	6-2.9	Represent whole numbers in exponential form.
Number and Operations	7-2.1	Understand fractional percents and percents greater than one hundred.
	7-2.2	Represent the location of rational numbers and square roots of perfect squares on a number line.
	7-2.3	Compare rational numbers, percentages, and square roots of perfect squares, by using the symbols \leq , \geq , $<$, $>$, and $=$.
	7-2.4	Understand the meaning of absolute value.
	7-2.5	Apply ratios, rates, and proportions to discounts, taxes, tips, interest, unit costs, and similar shapes.
	7-2.6	Translate between standard form and exponential form.
	7-2.7	Translate between standard form and scientific notation.
	7-2.8	Generate strategies to add, subtract, multiply, and divide integers.
	7-2.9	Apply an algorithm to multiply and divide fractions and decimals.
	7-2.10	Understand the inverse relationship between squaring and finding square roots of perfect squares.
	8-2.1	Apply an algorithm to add, subtract, multiply, and divide integers.
	8-2.2	Understand the effect of multiplying and dividing a rational number by another rational number.
	8-2.3	Represent the approximate location of irrational numbers on a number line.
	8-2.4	Compare rational and irrational numbers by using the symbols \leq , \geq , $<$, $>$, and $=$.
	8-2.5	Apply the concept of absolute value.
	8-2.6	Apply strategies and procedures to approximate between two whole numbers the square roots or cube roots of numbers less than 1,000.
	8-2.7	Apply ratios, rates, and proportions.

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Algebra	6-3.1	Analyze numeric and algebraic patterns and pattern relationships.
	6-3.2	Apply order of operations to simplify whole-number expressions
	6-3.3	Represent algebraic relationships with variables in expressions, simple equations, and simple inequalities.
	6-3.4	Use the commutative, associative, and distributive properties to show that two expressions are equivalent.
	7-3.1	Analyze geometric patterns and pattern relationships.
	7-3.4	Use inverse operations to solve two-step equations and two-step inequalities.
	7-3.5	Represent on a number line the solution of a two-step inequality.

Geometry	6-4.1	Represent with ordered pairs of integers the location of points in a coordinate grid.
	6-4.2	Apply strategies and procedures to find the coordinates of the missing vertex of a square, rectangle, or right triangle when given the coordinates of the polygon's other vertices.
	6-4.3	Generalize the relationship between line symmetry and rotational symmetry for two-dimensional shapes.
	6-4.4	Construct two-dimensional shapes with line or rotational symmetry.
	6-4.5	Identify the transformation(s) used to move a polygon from one location to another in the coordinate plane.
	6-4.6	Explain how transformations affect the location of the original polygon in the coordinate plane.
	6-4.7	Compare the angles, side lengths, and perimeters of similar shapes.
	6-4.8	Classify shapes as similar.
	6-4.9	Classify pairs of angles as either complementary or supplementary.
	7-4.1	Analyze geometric properties and the relationships among the properties of triangles, congruence, similarity, and transformations to make deductive arguments.
	7-4.5	Analyze the congruent and supplementary relationships- specifically, alternate interior, alternate exterior, corresponding, and adjacent- of the angles formed by parallel lines and a transversal.
	7-4.7	Explain the proportional relationship among attributes of similar shapes.
	7-4.8	Apply proportional reasoning to find missing attributes of similar shapes.
	7-4.10	Explain the relationship of the angle measurements among shapes that tessellate.

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	6-6.1	Predict the characteristics of one population based on the analysis of sample data.
	6-6.2	Organize data in frequency tables, histograms, or stem-and-leaf plots as appropriate.
	6-6.3	Analyze which measure of central tendency (mean, median, or mode) is the most appropriate for a given purpose.
	6-6.4	Use theoretical probability to determine the sample space and probability for one- and two-stage events such as tree diagrams, models, lists, charts, and pictures.
	6-6.5	Apply procedures to calculate the probability of complementary events.
Data Analysis and Probability	7-6.1	Predict the characteristics of two populations based on the analysis of sample data.
	7-6.2	Organize data in box plots or circle graphs as appropriate.
	7-6.3	Apply procedures to calculate the inter-quartile range.
	7-6.4	Interpret the inter-quartile range for data.
	7-6.5	Apply procedures to calculate the probability of mutually exclusive simple or compound events.
	7-6.6	Interpret the probability of mutually exclusive simple or compound events.
	7-6.7	Differentiate between experimental and theoretical probability of the same event.
	7-6.8	Use the Fundamental Counting Principle to determine the number of possible outcomes for a multistage event.
	8-6.3	Use theoretical and experimental probability to make inferences and convincing arguments about an event or events.
	8-6.4	Apply procedures to calculate the probability of two dependent events.
	8-6.5	Interpret the probability for two dependent events.
	8-6.6	Apply procedures to compute the odds of a given event.
	8-6.7	Analyze probability using area models.
	8-6.8	Interpret graphic and tabular data representations by using range and the measures of central tendency (mean, median, and mode).

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	6-5.1	Explain the relationships among the circumference, diameter, and radius of a circle.
	6-5.2	Apply strategies and formulas with an approximation of π (3.14, or $\frac{22}{7}$) to find the circumference and area of a circle.
	6-5.4	Apply strategies and procedures to estimate the perimeters and areas of irregular shapes.
	6-5.5	Apply strategies and procedures of combining and subdividing to find the perimeters and areas of irregular shapes.
	6-5.6	Use proportions to determine unit rates.
	6-5.7	Use a scale to determine distance.
	Measurement	7-5.1
7-5.2		Apply strategies and formulas to determine the surface area and volume of the three-dimensional shapes: prism, pyramid, and cylinder.
7-5.3		Generate strategies to determine the perimeters and areas of trapezoids.
7-5.4		Recall equivalencies associated with length, mass and weight, and liquid volume: 1 square yard = 9 square feet, 1 cubic meter = 1 million cubic centimeters, 1 kilometer = $\frac{5}{8}$ mile, 1 inch = 2.54 centimeters; 2.2 kilograms = 1 pound; and 1.06 quarts = 1 liter.
7-5.5		Use one-step unit analysis to convert between and within the U.S. Customary System and the metric system.
	8-5.1	Use proportional reasoning and the properties of similar shapes to determine the length of a missing side.
	8-5.2	Explain the effect on the area of two-dimensional shapes and the volume of three-dimensional shapes when one or more of the dimensions are changed.
	8-5.4	Apply formulas to determine the exact (π) circumference and area of a circle.
	8-5.5	Apply formulas to determine the perimeters and areas of trapezoids.
	8-5.6	Analyze a variety of measurement situations to determine the necessary level of accuracy and precision.
	8-5.7	Use multi-step unit analysis to convert between and within U.S. Customary System and the Metric System.