



Alignment Document
State of Idaho and Aventa Learning Pre-Algebra

Pre-Algebra
2005-2007 Benchmark Blueprint

Standards	Goals	Benchmarks	Unit Name	Course Topic Description
8.M.1 Number and Operation	8.M.1.1 Understand and use numbers.	8.M.1.1.1 Compare magnitudes and relative magnitudes of rational numbers, including integers, fractions, decimals, percents, and absolute values.	Basics	Absolute Value
			Basics	Integer Math
			Decimals and Percents	Decimals
			Fractions	Fraction Basics
		8.M.1.1.2 Use rational numbers, including percents and ratios, and pi to solve problems.	Fractions	Fraction Basics
			Decimals and Percents	Percents
			Number Basics	Number Properties
8.M.1.1.3 Locate the position of rational numbers and positive real numbers on a number line.	Basics	Integer Math		
8.M.1.1.4 Convert between standard form, scientific notation, and exponential form.	Basics	Exponents		
8.M.1.1.5 Apply number theory concepts (primes, composites, prime factorization, LCM, GCF).	Basics	Factors		
8.M.1.1.6 Recognize pertinent information for problem solving.	Number Basics	Number Properties		

		8.M.1.1.7 Apply integers in one- and two-step common real-world situations.	Basics	Integer Math
		8.M.1.1.8 Use appropriate vocabulary.		
8.M.1.2 Perform computations accurately.		8.M.1.2.1 Recall the common equivalent fractions, decimals, and percents of halves, thirds, fourths, fifths, and tenths.	Decimals and Percents	Decimals
			Fractions	Fraction Basics
		8.M.1.2.2 Add, subtract, multiply, and divide rational numbers.		
		8.M.1.2.3 Evaluate numerical expressions with whole number exponents.	Basics	Exponents
		8.M.1.2.4 Evaluate numerical expressions with rational numbers using the order of operations.	Number Basics	Number Properties
		8.M.1.2.5 Select and use an appropriate method of computation from mental math, paper and pencil, calculator, or a combination of the three.	Number Basics	Number Properties
		8.M.1.2.6 Use a variety of strategies including common mathematical formulas to compute problems drawn from real life situations.	Word Problems	Strategies
		8.M.1.2.7 Use appropriate vocabulary and notations.	Number Basics	Number Properties
8.M.1.3 Estimate and judge reasonableness of results.			Word Problems	Strategies
		8.M.1.3.1 Estimate to predict computation results.	Number Basics	Number Properties
		8.M.1.3.2 Identify when estimation is appropriate and applies to problem solving situations.	Number Basics	Number Properties
			Word Problems	Strategies
		8.M.1.3.3 Identify whether a given estimate is an overestimate or underestimate.	Word Problems	Strategies
		8.M.1.3.4 Use a four-function calculator to solve complex grade-level problems.	Equations	Solving Simple Equations
			Number Basics	Number Properties

		8.M.1.3.5 Formulate conjectures and justify (short of formal proof) why they must be or seem to be true.	Word Problems Equations	Strategies Solving Simple Equations
		8.M.1.3.6 Use appropriate vocabulary and notations.	Word Problems	Strategies
8.M.2 Concepts and Principles of Measurement	8.M.2.1 Understand and use U.S. customary and metric measurements.	8.M.2.1.1 Select and use appropriate units and tools to make formal measurements in both systems.	Number Basics	Number Properties
		8.M.2.1.2 Apply estimation of measurement to real-world and content problems using standard measuring devices.	Word Problems	Strategies
		8.M.2.1.3 Compare the differences and relationships among measures of perimeter, area, and volume (capacity) within both systems.	Factoring and Geometric Formulas	Geometric Formulas
		8.M.2.1.4 Given the formulas, find the circumference, perimeter, or area of triangles, circles, and quadrilaterals, and the volume and surface area of rectangular prisms.	Factoring and Geometric Formulas	Geometric Formulas
		8.M.2.1.5 Convert units of measurement within each system in problem solving situations.	Number Basics	Number Properties
			Word Problems	Strategies
		8.M.2.1.6 Solve problems involving area of circles and the perimeter and area of rectangles and triangles.	Factoring and Geometric Formulas	Geometric Formulas
		8.M.2.1.7 Use appropriate vocabulary and notations.	Word Problems	Strategies
	8.M.2.2 Apply the concepts of rates, ratios, and proportions.	8.M.2.2.1 Use rates, proportions, ratios, and map scales in problem-solving situations.	Fractions	Fractions Basics
Word Problems			Strategies	
		8.M.2.2.2 Determine unit rates in real-world situations.	Word Problems	Strategies

	8.M.2.3 Apply dimensional analysis.	8.M.2.3.1 Illustrate the interrelationship of measurement units through dimensional analysis conversions.	Basic Geometry Equations	Geometric Formulas Solving Simple Equations
8.M.3 Concepts and Language of Algebra and Functions	8.M.3.1 Use algebraic symbolism as a tool to represent mathematical relationships.	8.M.3.1.1 Use variables in expressions, equations, and inequalities.	Equations	Solving Simple Equations
		8.M.3.1.2 Translate simple word statements and story problems into algebraic expressions and equations.	Word Problems Equations	Strategies Solving Simple Equations
		8.M.3.1.3 Use symbols "<," ">," "=", "not equal to," "less than or equal to," and "greater than or equal to" to express relationships.	Number Basics	Number Properties
	8.M.3.2 Evaluate algebraic expressions.	8.M.3.2.1 Use and apply the following properties in evaluating algebraic expressions: commutative, associative, identity, zero, inverse, distributive, and substitution.	Number Basics	Number Properties
		8.M.3.2.2 Use the order of operations in evaluating simple algebraic expressions.	Polynomials	Evaluating Polynomials
		8.M.3.2.3 Simplify algebraic expressions.	Equations	Solving Simple Equations
	8.M.3.3 Solve algebraic equations and inequalities.	8.M.3.3.1 Solve one-and two-step equations and inequalities.	Equations	Solving Simple Equations
		8.M.3.3.2 Match graphical representations with simple linear equations.	Equations	Linear Equations
	8.M.3.4 Understand the concept of functions.	8.M.3.4.1 Extend patterns and identify a rule (function) that generates the pattern using rational numbers.	Basics	Absolute Values
			Equations	Solving Simple Equations
		8.M.3.4.2 Use relationships to explain how a change in one quantity may result in a change in another, and identify the relationship as a positive, negative, or neither.	Basics	Integer Math
			Equations	Solving Simple Equations
	8.M.3.4.3 Use appropriate vocabulary and notations.	Word Problems	Strategies	

	8.M.3.5 Represent equations, inequalities and functions in a variety of formats.	8.M.3.5.1 Represent a set of data in a table, as a graph, and as a mathematical relationship.	Equations	Linear Equations
	8.M.3.6 Apply functions to a variety of problems.	8.M.3.6.1 Use patterns and linear functions to represent and solve problems.	Equations	Linear Equations
8.M.4 Concepts and Principles of Geometry	8.M.4.1 Apply concepts of size, shape, and spatial relationships.	8.M.4.1.1 Describe and classify relationships among types of one-, two-, and three-dimensional geometric figures, using their defining properties.	Basic Geometry	Geometric Formulas
		8.M.4.1.2 Draw and measure various angles and shapes using appropriate tools.	Basic Geometry	Geometric Formulas
		8.M.4.1.3 Apply the fundamental concepts, properties, and relationships among points, lines, rays, planes, and angles.	Basic Geometry	Geometric Formulas
		8.M.4.1.4 Identify and model the effects of reflections, translations, rotations, and scaling on various shapes.	Geometry	Reflections, Translations, Rotations
		8.M.4.1.5 Identify congruence, similarities, and line symmetry of shapes.	Basic Geometry	Geometric Formulas
		8.M.4.1.6 Explain the concept of surface area and volume (capacity).	Basic Geometry	Geometric Formulas
		8.M.4.1.7 Use appropriate vocabulary and symbols.	Basic Geometry	Geometric Formulas
		8.M.4.2 Apply the geometry of right triangles.	No objectives at this grade level.	Basic Geometry
	8.M.4.3 Apply graphing in two dimensions.	8.M.4.3.1 Identify and plot points on a coordinate plane.	Equations	Linear Equations
8.M.5 Data Analysis, Probability, and Statistics	8.M.5.1 Understand data analysis.	8.M.5.1.1 Analyze and interpret tables, charts, and graphs, including frequency tables, scatter plots, broken line graphs, line plots, bar graphs, histograms, circle graphs, and stem-and-leaf plots.	Probability and Data Analysis	Probability
			Probability and Data Analysis	Data Analysis Projects

		8.M.5.1.2 Explain and justify conclusions drawn from tables, charts, and graphs.	Probability and Data Analysis Probability and Data Analysis	Data Analysis Projects Probability
		8.M.5.1.3 Use appropriate vocabulary and notations.	Probability and Data Analysis Probability and Data Analysis	Data Analysis Projects Probability
	8.M.5.2 Collect, organize, and display data.	8.M.5.2.1 Collect, organize, and display data with appropriate notation in tables, charts, and graphs, including scatter plots, broken line graphs, line plots, bar graphs, histograms, and stem-and-leaf plots.	Probability and Data Analysis Probability and Data Analysis	Probability Data Analysis Projects
	8.M.5.3 Apply simple statistical measurements.	8.M.5.3.1 Choose and calculate the appropriate measure of central tendency - mean, median, and mode.	Probability and Data Analysis	Probability
		8.M.5.3.2 Explain the significance of distribution of data, including range, frequency, gaps, and clusters.	Probability and Data Analysis Probability and Data Analysis	Probability Data Analysis Projects
	8.M.5.4 Understand basic concepts of probability.	8.M.5.4.1 Model situations of probability using simulations.	Probability and Data Analysis	Probability
		8.M.5.4.2 Recognize equally likely outcomes.	Probability and Data Analysis	Probability
		8.M.5.4.3 Explain that probability ranges from 0% to 100% and identify a situation as having high or low probability.	Probability and Data Analysis	Probability
		8.M.5.4.4 Use the language of probability.	Probability and Data Analysis	Probability



	8.M.5.5 Make predictions or decisions based on data.	8.M.5.5.1 Make predictions based on experimental and theoretical probabilities.	Probability and Data Analysis Probability and Data Analysis	Probability Data Analysis Projects
		8.M.5.5.2 Conduct statistical experiments and interpret results using tables, charts, or graphs.	Probability and Data Analysis Probability and Data Analysis	Data Analysis Projects Probability
		8.M.5.5.3 Use appropriate vocabulary and notations.	Probability and Data Analysis Probability and Data Analysis	Probability Data Analysis Projects