



Alignment Document
State of Colorado
And
Aventa Learning Pre-Algebra

Pre-Algebra
2005-2007 Benchmark Blueprint

State Standard Number	State Standard Area / Description	Unit Name	Course Topic Description
1	Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.		
1.1	demonstrate meanings for real numbers, absolute value, and scientific notation using physical materials and technology in problem-solving situations;	Basics	Absolute Value
1.2	develop, test, and explain conjectures about properties of number systems and sets of numbers; and		
1.3	use number sense to estimate and justify the reasonableness of solutions to problems involving real numbers.		
2	Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.		
2.1	model real-world phenomena (for example, distance-versus-time relationships, compound interest, amortization tables, mortality rates) using functions, equations, inequalities, and matrices;		

2.2	represent functional relationships using written explanations, tables, equations, and graphs, and describing the connections among these representations;	Equations	Solving Simple Equations
		Equations	Linear Equations
2.3	solve problems involving functional relationships using graphing calculators and/or computers as well as appropriate paper-and-pencil techniques;	Equations	Solving Simple Equations
		Equations	Linear Equations
2.4	analyze and explain the behaviors, transformations, and general properties of types of equations and functions (for example, linear, quadratic, exponential); and	Equations	Linear Equations
2.5	interpret algebraic equations and inequalities geometrically and describing geometric relationships algebraically.	Equations	Linear Equations
3	Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.		
3.1	design and conduct a statistical experiment to study a problem, and interpret and communicate the results using the appropriate technology (for example, graphing calculators, computer software);	Probability and Data Analysis	Data Analysis Projects
3.2	analyze statistical claims for erroneous conclusions or distortions;		
3.3	fit curves to scatter plots, using informal methods or appropriate technology, to determine the strength of the relationship between two data sets and to make predictions;		
3.4	draw conclusions about distributions of data based on analysis of statistical summaries (for example, the combination of mean and standard deviation, and differences between the mean and median);	Probability and Data Analysis	Probability
		Probability and Data Analysis	Data Analysis Projects

3.5	use experimental and theoretical probability to represent and solve problems involving uncertainty (for example, the chance of playing professional sports if a student is a successful high school athlete); and	Probability and Data Analysis	Data Analysis Projects
3.6	solve real-world problems with informal use of combinations and permutations (for example, determining the number of possible meals at a restaurant featuring a given number of side dishes).		
4	Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.		
4.1	find and analyze relationships among geometric figures using transformations (for example, reflections, translations, rotations, dilations) in coordinate systems;		
4.2	derive and use methods to measure perimeter, area, and volume of regular and irregular geometric figures;	Factoring and Geometric Formulas	Geometric Formulas
4.3	make and test conjectures about geometric shapes and their properties, incorporating technology where appropriate; and		
4.4	use trigonometric ratios in problem-solving situations (for example, finding the height of a building from a given point, if the distance to the building and the angle of elevation are known).		
5	Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.		
5.1	measure quantities indirectly using techniques of algebra, geometry, or trigonometry;	Factoring and Geometric Formulas	Geometric Formulas
		Equations	Linear Equations
5.2	select and use appropriate techniques and tools to measure quantities in order to achieve specified degrees of precision, accuracy, and error (or tolerance) of measurements; and		



5.3	determine the degree of accuracy of a measurement (for example, by understanding and using significant digits).	Number Basics	Significant Digits
5.4	demonstrate the meanings of area under a curve and length of an arc.		
6	Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.		
6.1	use ratios, proportions, and percents in problem-solving situations;	Decimals and Percents	Percents
6.2	select and use appropriate algorithms for computing with real numbers in problem-solving situations and determine whether the results are reasonable; and	Fractions	Fraction Basics
		Fractions	Multiplying and Dividing
		Fractions	Adding and Subtracting
		Decimals and Percents	Decimals
		Decimals and Percents	Percents
		Word Problems	Strategies
6.3	describe the limitations of estimation, and assess the amount of error resulting from estimation within acceptable limits.	Number Basics	Rounding
		Number Basics	Significant Digits