

Algebra I
CMP Alignment to BVSD CEDs

Course and Standard Number	Standard	CMP
A1M1	Simplifies expressions involving rational numbers, exponents and absolute value and justifies each step using properties of real numbers and laws of exponents	
	<p>a. Justifies steps used in simplifying expressions using concrete objects; pictorial representations; and properties of real numbers(e.g, associative, commutative, distributive, identity and inverse)</p> <p><i>Algebra connection: Adds, subtracts and multiplies polynomials, and divides polynomials by monomials using concrete objects, pictorial and area representations and algebraic manipulations</i></p>	<p>Associative—Introduced in <u>Accentuate the Negative</u> (Pg. 57, 80 student copy)</p> <p>Commutative— Introduced in <u>Accentuate the Negative (Inves. 2)</u>, used again in <u>Moving Straight Ahead (MSA)</u> and <u>Growing</u>.</p> <p>Distributive— Introduced in <u>Accentuate the Negative</u>, used again in <u>Moving Straight Ahead (MSA)</u> and <u>Growing</u>. Expanded in <u>Frogs, Fleas and Painted</u> (write equivalent quadratic expressions in factored and expanded form; explore visual representation; include multiplication of two binomials); <u>Say It With Symbols</u>.</p> <p>Identity—</p> <p>Inverse—Additive Inverse introduced in <u>Accentuate the Negative</u>.</p> <p>Algebra Connection—<u>Say It With Symbols</u></p>
	<p>b. Simplifies numerical expressions using order of operations, including those involving positive integer exponents and absolute value symbols</p> <p><i>Algebra connection: Demonstrates fluency in symbolic manipulation of polynomials and rational expressions by rearranging and collecting</i></p>	<p>Order of Operations-- (Inves. 4) and absolute value— Introduced in <u>Accentuate the Negative</u>. <u>Say It With Symbols</u>: Model, write and solve equivalent expressions. Interpret information.</p>

	<i>terms, identifying and canceling common factors in rational expressions, and applying the properties of positive integer exponents.</i>	
	c. Evaluates symbolic expressions by substituting given values for variables.	<u>Shapes of Algebra</u> : Solving a system of linear equations by substitution or by combining equations. <u>Say It With Symbols</u> (Inves. 2)
	d. Applies the laws of exponents to perform operations on expressions with integral exponents, using scientific notation when appropriate and simplifies square roots of whole numbers to simplest radical form.	<u>Growing</u> : Inves. 5 (Operating with exponents, Exploring Exponential Exponents) <u>Looking for Pyth</u> : Simplify square roots
	e. Uses estimation to judge the reasonableness of results of computations and of solutions to problems involving real numbers	On-going throughout all units
A1M2	Investigates and analyzes functions and function families	
	a. Determines if a pattern is a relation or function and identifies the domain, range, dependent, and independent variables in a function	Introduced in <u>Variables and Patterns</u> (6 th) <u>MSA</u> (7 th); Explored further in <u>Thinking with Math Models</u> (Introduction)
	b. Translates between different representations of functions (graphical, symbolic, verbal and tabular)	<u>Moving Straight Ahead</u> <u>Thinking with Math Models</u>
	c. Finds values of a function for elements in its domain and locates the zeros (i.e, intercepts) of the function both algebraically and graphically; connecting the value of (x) to the y coordinate of the graph	<u>Moving Straight Ahead</u> <u>Thinking with Math Models</u>
A1M3	Analyzes and represents linear functions and inequalities to solve problems	
	a. Solves equations and inequalities including those involving the absolute value of linear expressions and justifies the steps using properties of equality, inequality and real numbers	<u>Thinking with Math Models</u> —Inves. 2 <u>Say It With Symbols</u> —Inves. 2 (Properties of Equality)

	b. Graphs linear functions and inequalities in two variables using a variety of techniques (i.e., slope-intercept, x and y intercepts, point-slope, graphing by transformation)	<u>Thinking With Mathematical Models</u> <u>Kaleidoscopes, Hubcaps, and Mirrors</u> —Inves. 5 (Transforming coordinates)
	c. Determines slope and x and y intercepts from equation, graph and two points	<u>Moving Straight Ahead</u> <u>Thinking with Math Models</u>
	d. Describes slope as rate of change and explains the significance of a positive, negative, zero, or undefined slope	<u>Moving Straight Ahead</u>
	e. Writes a linear equation when given the graph of a line, two points on a line, the slope and a point on a line, or lines either perpendicular or parallel to a given line through a given point, and recognizes equivalent forms of linear equations	<u>Moving Straight Ahead</u> <u>Thinking with Math Models</u>
	f. Solves everyday problems (e.g., mixture, shopping, rate) that can be modeled using systems of linear equations or inequalities by applying informal, algebraic (e.g., substitution, elimination) and graphical methods to find the solution	<u>Say It With Symbols</u> —Inves. 3
A1M4	Solves quadratic equations both symbolically and graphically	
	a. Factors completely first and second degree binomials and trinomials in one or two variables and uses a graphing calculator to confirm algebraic factorizations	<u>Frogs, Fleas and Painted Cubes</u> (Inves. 2) <u>Say It With Symbols</u> (Inves. 3.3—Factoring; Inves. 3.4 – Solving Quadratic Equations)
	b. Graphs quadratic equations and finds the vertex and approximate x intercepts (i.e., roots) of the quadratic	<u>Frogs, Fleas and Painted Cubes</u> (Inves. 4.1)
	c. Explains why quadratics do not have a constant rate of change	<u>Frogs, Fleas and Painted Cubes</u> (Inves. 4)
	d. Finds solutions to quadratic equations with real roots by factoring and using the quadratic formula and demonstrates an understanding of the equivalence of the methods	<u>Frogs, Fleas and Painted Cubes</u> <u>Say It With Symbols</u> : Solve quadratic equations by factoring (Inves. 3)

	e. Uses quadratics to solve optimization (e.g. determine the greatest area of a rectangle given its perimeter) and other word problems	<u>Frogs, Fleas and Painted Cubes</u> (Inves. 1)
	f. Creates a quadratic equation given the two roots of the equation or the graph	<u>Frogs, Fleas and Painted Cubes</u>
		**Inverse Variation— <u>Thinking with Math Models</u> (Inves. 3)