MATHEMATICS

Algebra and Functions

Grade 3	Grade 4	Grade 5
1. Students select appropriate symbols, operations and properties to represent, describe, simplify and solve simple number relationships.	**1. Students use and interpret variables, mathematical symbols and properties to write and simplify expressions and sentences.**	**1. Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.**
3.1.1 represent relationships of quantities in the form of mathematical expressions, equations, or inequalities	4.1.1 use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate understanding and use of a concept of a variable)	5.1.1 use information taken from a graph or equation to answer questions about a problem situation
3.1.2 solve problems involving numeric equations or inequalities	4.1.2 interpret and evaluate mathematical expressions that use parentheses	5.1.2 use a letter to represent an unknown number; write and evaluate simple algebraic expressions
3.1.3 select appropriate operational and relational symbols to make an expression true (e.g., 4 __ 3 = 12, what operation symbol goes in the blank?)	4.1.3 use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations	5.1.3 know and use the distributive property in equations and expressions with variables
3.1.4 express simple unit conversions in symbolic form (e.g., #inches = #feet x 12)	4.1.4 use and interpret formulas (e.g., Area = length times width or A = lw) to answer questions about quantities and their relationships	5.1.4 identify and graph ordered pairs in the four quadrants of the coordinate plane
3.1.5 recognize and use the commutative and associative properties of multiplication (e.g., if 5 x 7 = 35, then what is 7 x 5?, if 5 x 7 x 3 =105, then what is 7 x 3 x 5?)	4.1.5 understand that an equation such as y = 3x + 5 is a prescription for determining a second number when a first number is given	5.1.5 solve problems involving linear functions with integer values, write the equation, and graph the resulting ordered pairs of integers on a grid
		5.1.6 simplify equations with two variables

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2. Students represent simple functional relationships.
 	
    3.2.1 solve simple problems involving a functional relationship between two quantities (e.g., find the total cost of multiple items given the per unit cost)
 	
    3.2.2 extend and recognize a linear pattern by its rules (e.g., the number of legs on a given number of horses can be calculated by counting by 4s or by multiplying the number of horses by 4)
	2. Students know how to manipulate equations.
	
	    4.2.1 know and understand that equals added to equals are equal
	
	    4.2.2 know and understand that equals multiplied by equals are equal	