

Hands-On Equations(R) Learning System: Level I Lesson Objectives	
Lesson 1	Students will use a symbol to represent an unknown.
	Students will demonstrate an understanding of the concepts of <i>equivalence</i> , <i>variable</i> , <i>constant</i> , <i>equation</i> , <i>equal to</i> (=), and <i>not equal to</i> (\neq).
	Students will use substitution and mental math to find and check solutions to physical or pictorial representations of algebraic equations in one variable.
Lesson 2	Students will demonstrate an understanding of the abstract representation of an algebraic equation in one variable.
	Students will model an abstract algebraic equation using concrete materials.
	Students will use repeated addition to represent multiplication in an algebraic expression.
	Students will demonstrate an understanding of the concepts of <i>equivalence</i> , <i>variable</i> , <i>constant</i> , <i>equation</i> , <i>equal to</i> (=), and <i>not equal to</i> (\neq).
	Students will use concrete models, guess-and-check, and number sense to solve one- and multi-step algebraic equations in one variable.
	Students will use substitution and mental math to check solutions to algebraic equations in one variable.
Lesson 3	Students will use concrete models to represent algebraic equations in one variable with unknowns on both sides of the equation.
	Students will use kinesthetic motions (physical actions) to solve algebraic equations in one variable with unknowns on both sides of the equation.
	Students will demonstrate an understanding of the concepts of <i>equivalence</i> , <i>variable</i> , <i>constant</i> , <i>equation</i> , <i>equal to</i> (=), and <i>not equal to</i> (\neq).
	Students will use repeated addition to represent multiplication in an algebraic expression.
	Students will use the Subtraction Property of Equality with variables to form equivalent statements when solving algebraic equations in one variable with unknowns on both sides of the equation.
	Students will use substitution and mental math to check solutions to algebraic equations in one variable.

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Lesson 4	Students will use concrete models to represent algebraic equations in one variable with unknowns on both sides of the equation.
	Students will use kinesthetic motions (physical actions) to solve algebraic equations in one variable with unknowns on both sides of the equation.
	Students will use the Subtraction Property of Equality with variables and with constants to form equivalent statements when solving algebraic equations in one variable.
	Students will use substitution and mental math to check solutions to algebraic equations in one variable.
Lesson 5	Students will use concrete models and kinesthetic motions (physical actions) to represent and solve algebraic equations in one variable with unknowns on both sides of the equation.
	Students will add and subtract monomials and combine like terms to form equivalent expressions when solving algebraic equations in one variable.
	Students will use Properties of Equality, such as the Subtraction Property of Equality, to form equivalent statements when solving algebraic equations in one variable with unknowns on both sides of the equation.
	Students will use substitution and mental math to check solutions to algebraic equations in one variable.
Lesson 6	Students will use concrete models to represent the multiplication of a binomial by a positive integer constant, such as $2(x + 1)$.
	Students will use concrete models and kinesthetic motions (physical actions) to represent and solve algebraic equations in one variable with unknowns on both sides of the equation.
	Students will use algebraic properties, such as the Subtraction Property of Equality and the Distributive Property of Multiplication over Addition, to form equivalent statements and expressions when solving algebraic equations in one variable.
	Students will use substitution and mental math to check solutions to algebraic equations in one variable.

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Lesson 7	Students will use pictorial models to represent abstract algebraic equations that contain multiplication of a binomial by a positive integer constant, such as $2(x + 1)$.
	Students will use pictorial representations to solve algebraic equations in one variable with unknowns on both sides of the equation.
	Students will use algebraic properties, such as the Subtraction Property of Equality and the Distributive Property of Multiplication over Addition, to form equivalent statements and expressions when solving algebraic equations in one variable.
	Students will use substitution and mental math to check solutions to algebraic equations in one variable.