

Core Content

Cluster Title: Apply and extend previous understandings of arithmetic to algebraic expressions.

Standard 2: Write, read, and evaluate expressions in which letters stand for numbers.

a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as $5 - y$.

Concepts and Skills to Master

Conceptual:

Understand that letters, called variables, represent unknown numbers.

Know that the same rules apply in operations with numbers also apply in operations with variables.

Procedural:

Translate an expression from its word form and vice versa.

Representational:

Represent variables with letters (e.g., a , x ,... except e and i).

Supports for Teachers

Critical Background Knowledge

Conceptual:

Recognize that expressions use one or more mathematical symbols to represent a number or quantity.

Know that expressions do not include equal, greater than, or less than signs.

Procedural:

Perform the four operations of addition, subtraction, multiplication, and division.

Representational:

Represent a problem such as “seven plus a number is twelve” with symbolic notation, such as $7 + \Delta = 12$.

Represent the four operations with manipulatives, diagrams, and number lines.

Academic Vocabulary and Notation	
Equation, expression, notation for multiplication (e.g., $3x$, $3(4)$), variable	
Instructional Strategies Used	Resources Used
<p>1. Within your classroom, have the students find situations where they can role play to compare known and unknown quantities (e.g., Student A (Dory) and Student B (Colleen); Dory says, "I have two sisters." Colleen says, "I have Dory – 1 sisters." Dory says, "You have $d - 1$ sister. You have one sister.") Use all operations.</p> <p>2. Give each pair of students an expression such as $x + 957$. Challenge them to find a way to evaluate each expression for $x = 35$, 825, and 373. Then have the students write a real-life context for each expression.</p>	<p>http://www.mathgoodies.com/lessons/vol7/equations.html</p>
Assessment Tasks Used	
<p>Skill-based Task: Write each word phrase as an algebraic expression. 6 less than $3t$ the product of w and 8 r divided by 15</p>	<p>Problem Task: Hannah is 3 years younger than Katie. Joey is twice as old as Hannah. Let k stand for Katie's age. Write an expression to represent Hannah's age. Using k, write an expression for Joey's age.</p>