Grade 6 Topic 02- Variables, Expressions, and Properties

Content Area: **Mathematics**
Course(s):
Time Period: **Week1**
Length: **1 Week**
Status: **Published**

Stage 1: Desired Results

Unit Overview/ Rationale

Standards & Indicators

MA.6.6.EE.B.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
MA.6.6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.
MA.6.6.EE.A.2a	Write expressions that record operations with numbers and with letters standing for numbers.
MA.6.6.EE.A.3	Apply the properties of operations to generate equivalent expressions.

Big Ideas - Students will understand that...

Variable – Mathematical situations and structures can be translated and represented abstractly using variables, expressions and equations.

Properties – For a given set of numbers these are relationships that are always true, called properties, and these are the rules that govern arithmetic and algebra.

Basic facts and Algorithms – There is more than one algorithm for each of the operations with rational numbers. Some strategies for basic facts and most algorithms for operations with rational numbers, both mental math and paper/pencil, use equivalence to transform calculations into simpler ones.

Patterns, Relations and Functions – Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways. For some relationships, mathematical expressions and equations can be used to describe how members of one set are related to members of a second set.

Practices, Processes and Proficiencies – Mathematics content and practices can be applied to solve problems.

Essential Questions - What provocative questions will foster inquiry and transfer of learning

What are algebraic expressions and how can they be written and evaluated?

What arithmetic number relationships, called properties, are always true?

Content - Students will know...

Read and write algebraic expressions

Evaluate algebraic expressions.

Write algebraic expressions that record operations.

Identify parts of an expression using mathematical terms.

View one or more parts of an expression as a single entity.

Evaluate expressions at specific values of their variables.

Evaluate expressions using Order of Operations.

Generate equivalent expressions.

Solve problems by using variables to represent numbers and write expressions.

Understand how variables were used.

Skills - Students will be able to...

Write numerical expressions with variables to represent relations expressed verbally.

Give missing addends and factors in equations and state the property used.

Evaluate numeric or algebraic expressions wtih three or more numbers and up to three variables. Expressions may

include parentheses and exponents. The correct order of operations will be used to evaluate the expressions.

Use the Distributive Property to evaluate expressions and to compute mentally.

Evaluate expressions, using mental math strategies and properties of operations, and justify the steps used to compute mentally.

Evaluate algebraic expressions using substitution.

Identify missing numbers in a pattern and write an algebraic expression to describe the pattern.

Make and use tables to solve word problems.

Stage 2: Assessment Evidence

Assessment

Stage 3: Learning Plan

Learning Activities

Write algebraic expressions to represent given situations.

Write and act out the the Commutative Property of Addition.

Use the order of operations to evaluate expressions.

Use the Distributive Property to do mental math.

Use the properties of operations to compute mentally.

Evaluate algebraic expressions.

Look for patterns in input/output tables and write algebraic expressions to describe the patterns.

Learn how to make a table to solve a problem.

Resources

Interactive Learning Recording Sheet 1