6th Grade - Unit 2: Math - Expressions and Equations

Content Area: **Mathematics**
Course(s): **Math 6, Generic Course**
Time Period: **Generic Time Period**
Length: **30 days**
Status: **Published**

Established Goals/Standards

Please choose the appropriate Goals/Standards from the Standards tab above.

MA.6.EE	Expressions and Equations
MA.6.EE.A	Apply and extend previous understandings of arithmetic to algebraic expressions.
MA.6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.
MA.6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.
MA.6.EE.A.2a	Write expressions that record operations with numbers and with letters standing for numbers.
MA.6.EE.A.2b	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.
MA.6.EE.A.2c	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
MA.6.EE.A.3	Apply the properties of operations to generate equivalent expressions.
MA.6.EE.A.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).
MA.6.EE.B	Reason about and solve one-variable equations and inequalities.
MA.6.EE.B.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
MA.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.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
MA.6.EE.B.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real- world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
MA.6.EE.C	Represent and analyze quantitative relationships between dependent and independent variables.
MA.6.EE.C.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Essential Questions

Please add your Essential Questions by clicking on the Lists tab above.

- How can equations be graphed?
- What are algebraic expressions and how can they be written and evaluated?
- What arithmetic number relationships, called properties, are always true?
- What patterns can be found in graphs and equations?
- What procedures can be used to solve equations?

Enduring Understanding

Please add your Enduring Understandings by clicking on the Lists tab above.

- Algebraic equations can be graphed on the coordinate plane by using a table of values.
- By using the properties of equality, equations can be solved.
- Patterns can sometimes help identify the relationships between quantities, and an equation can be written describing the relationship.
- Some mathematical phrases can be represented using a variable in an algebraic expression.
- You can add (multiply) two numbers in any order. Three numbers can be grouped and added (or multiplied) in any order. Addition and multiplication both have an identity property.

Content

Students will be able to:

- model, write, simplify and evaluate algebraic expressions (including exponents)
- solve one-step equations by applying properties of equality including whole numbers and rational numbers
- use the distributive property to simplify expressions in problem solving situations
- express, identify, solve, and graph one step inequalities
- make a function table to write an equation
- graph functions using a table of values
- use tables and graphs to represent real world situations

Vocabulary:

- coefficient
- constant
- variables
- properties - commutative, associative, distributive, identity, and equality
- numerical expression
- algebraic expression
- equation
- inverse operation

- term
- equivalent expression
- exponent
- power
- inequality
- is greater than
- is less than
- coordinate plane
- function
- linear function
- line of reflection
- horizontal line
- vertical line

Assessments

Resources

- Pearson Math Course 1 textbook and online resources
- Teacher made flip-charts
- Web-based activities (mathplayground.com) (coolmath.com)
- Teacher made worksheets/assessments
- mad minutes
- NJCTL.org (PMI math)
- Pizzazz series of worksheets