Unit 5: Algebraic & Properties

Content Area: **Math**
Course(s): **Math**
Time Period: **January**
Length: **3 weeks**
Status: **Published**

Unit Overview

In this unit, students will learn about the following topics:

- The different components of an algebraic expression

- New vocabulary such as: coefficient, constant, variable, term

- Combining like terms to simplify an expression

- Writing repeated multiplication with exponents

- Evaluating algebraic expressions for 1 or more variables

- Translating verbal phrases to algebraic expressions

- Using properties of addition and multiplication to simplify expressions

- Factor the greatest common factor out of an algebraic expression

Enduring Understandings

SWBAT:

- Identify parts of an algebraic expression

- Evaluate algebraic expressions with one or more variables

- Evaluate algebraic expressions with one or more operations

- Write numerical expressions

- Write algebraic expressions

- Write and evaluate algebraic expressions that represent real-world problems.

- Explain the meaning of equivalent expressions

- Use properties of addition and multiplication to generate equivalent expressions

- Use the distributive property to simplify algebraic expressions and to combine like terms

- Factor numerical and algebraic expressions

- Identify greatest common factor of terms including variables

- Interpret factored expressions in real-world problems.

Essential Questions

How can we:

- identify terms, coefficients, and constants for an expression?
- write repeated multiplication of variables using exponents?
- use order of operations to simplify numerical expressions?
- evaluate algebraic expressions for one or more variables?
- represent unknowns using variables?
- model real-world problems with algebraic expressions?

How can we:

- use keywords to translate verbal phrases to algebraic expressions?
- write verbal phrases that represent algebraic expressions?
- write expressions that model real-world problems?
- evaluate these real-world expressions to make predictions about future data?

How can we:

- utilize properties of addition and multiplication to simplify expressions?
- combine like terms to simplify expressions?
- use the distributive property to simplify expressions?

How can we:

- factor numerical and algebraic expressions using the greatest common factor?
- interpret factored expressions in real-world problems?

Instructional Strategies & Learning Activities

- Guided Practice
- Daily Do Now
- Extra Practice & Puzzle Time (Resources)
- Scavenger Hunts
- Coloring Activities
- Task Cards (Around the World)
- Maze Activities
- Quizizz Online Assignments

- Kahoot! Online Games
- GimKit Online Games

Integration of 21st Century Themes and Skills

9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1).
9.4.8.IML.4	Ask insightful questions to organize different types of data and create meaningful visualizations.
9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
PFL.9.1.8.A.6	Explain how income affects spending decisions.

Technology & Design Integration

TECH.8.1.8.A.1	Demonstrate knowledge of a real world problem using digital tools.
TECH.8.1.8.A.CS1	Understand and use technology systems.
TECH.8.1.8.A.CS2	Select and use applications effectively and productively.
TECH.8.1.8.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.1.8.E.CS1	Plan strategies to guide inquiry.

Interdisciplinary Connections

L.KL.6.2.A	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases.
L.KL.6.2.B	Gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.
L.VL.6.3.A	Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.VL.6.3.C	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible).

Differentiation

Definitions of Differentiation Components:

- Content – the specific information that is to be taught in the lesson/unit/course of instruction.
- Process – how the student will acquire the content information.
- Product – how the student will demonstrate understanding of the content.
- Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:

- High-achieving students will assist low-achieving students in mixed ability groupings for games and activities.

- High-achieving students can complete sudoku puzzles and logic puzzles as extension activities.
- Limit number/difficulty of problems for low-achieving students to demonstrate mastery.
- Narrow down problem choice to core concepts for low-achieving students.
- Leveled group-based activities, determined by formative assessment.

Modifications & Accommodations

- High-achieving students will assist low-achieving students in mixed ability groupings for games and activities.

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Benchmark Assessments

Schoolwide Benchmark assessments:

- Linkit Benchmarks (Form A in September, Form B in January, Form C in June): Linked to NJSLA standards

Additional Benchmarks used in this unit:

- IXL Diagnostic + continued practice during IXL periods

Formative Assessments

Formative Assessments used in this unit:

- Kahoot! Games

- Quizizz Games

- Homework

- Q & A

- Scavenger Hunts

- Coloring Activities

- Task Cards

- Partner Activities

Summative Assessments

Summative assessments for this unit:

- Chapter Test
- Quizzes

Instructional Materials

1. Big Ideas Math: Math & You 6th Grade Textbook
2. Quizizz
3. Kahoot!
4. Scavenger Hunts
5. Task Cards
6. Coloring Activities
7. GimKit

Standards

6.NS.B.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
6.EE.A.2.a	Write expressions that record operations with numbers and with letters standing for numbers.
6.EE.A.2.b	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.
6.EE.A.2.c	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).
6.EE.A.3	Apply the properties of operations to generate equivalent expressions.
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).