Unit 6: Equations

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

Unit Overview

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

- Determining if a value is a solution to an equation

- Writing equations given a sentence

- Inverse Operations

- Solving one-step equations with inverse operations

- Writing equations in two variables

- Graphing equations in two variables in the coordinate plane

- Creating an input/output table given an equation

- Identifying independent and dependent variables

Enduring Understandings

SWBAT:

- Write equations by translating a sentence word-by-word

- Recognize which vocabulary terms correspond to which operations

- Substitute a value into an equation to see if it is a solution

- Use inverse operations to isolate a variable and ultimately solve a one-step equation

- Model and solve a real-world problem with an equation in one variable

- Model a relationship with an equation in two variables

- Identify the independent and dependent variables in a scenario

- Graph an equation in two variables in a first quadrant coordinate plane

- Plot points in an input/output table in a first quadrant coordinate plane

Essential Questions

How can we:

- identify key words and phrases that indicate equality?
- write word sentences as equations?
- create equations to represent real-life problems?

How can we:

- determine if a value is in the solution set of an equation?
- apply the addition and subtraction properties of equality to generate equivalent equations?
- solve one-step equations with addition or subtraction?
- create equations involving addition or subtraction to solve real-world problems?

How can we:

- apply the multiplication and division properties of equality to generate equivalent equations?
- solve one-step equations with multiplication or division?
- create equations involving multiplication or division to solve real-world problems?

How can we:

- determine whether an ordered pair is a solution of an equation in two variables?
- distinguish between independent and dependent variables?
- write and graph an equation in two variables?
- create equations in two variables to solve real-world problems?

Instructional Strategies & Learning Activities

1. Guided Practice
2. Daily Do Now
3. Extra Practice & Puzzle Time (Resources)
4. Scavenger Hunts
5. Coloring Activities
6. Task Cards (Around the World)
7. Maze Activities
8. Quizizz Online Assignments
9. Kahoot! Online Games
10. GimKit Online Games
11. Mystery Activity (like Clue)

Integration of 21st Century Themes and Skills

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.E.1	Explain what it means to be a responsible consumer and the factors to consider when making consumer decisions.
TECH.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).
TECH.9.4.8.TL.3	Select appropriate tools to organize and present information digitally.

Technology Design & Integration

TECH.8.1.8.A.1	Demonstrate knowledge of a real world problem using digital tools.
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

ELA.L.KL.6.2.A	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases.
ELA.L.KL.6.2.B	Gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.
ELA.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.
ELA.L.VL.6.3.D	Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
SCI.MS-PS1-3	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. Obtaining, evaluating, and communicating information in 6–8 builds on K–5 and progresses to evaluating the merit and validity of ideas and methods.

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

- Mystery Activity

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

MATH.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.
MATH.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.
MATH.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.
MATH.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.