Expressions Equations and Inequalities / Linear Equations and Graphs

Content Area: **Math**
Course(s): **Accelerated Algebra II, CP Algebra II**
Time Period: **Marking Period 1**
Length: **4**
Status: **Published**

Unit Overview

This unit allows students to master solving simple equations in one variable. The unit also allows students to master function notation and linear functions.

Enduring Understandings

Interpret the struction of expressions.

Create equtions that describe numbers or relationships.

Interperet functions that arise in applicaitons in terms of context.

Analyze functions using different representations.

Build a function that models a relationship between two quantities.

Essential Questions

How do variables help you model real-world situations?

How can you use the properties of real numbers to simplify algebraic expressions?

How do you solve an equation or an inequality?

Does it matter which form of a linear equation you use?

How do you use transformations to help graph absolute value functions?

How can you model data with a linear function?

New Jersey Student Learning Standards (No CCS)

MA.A-SSE.A.1a	Interpret parts of an expression, such as terms, factors, and coefficients.
MA.F-IF.B.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.
MA.A-SSE.B.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.
MA.F-IF.C.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
MA.F-IF.C.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
MA.A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems.
MA.A-CED.A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
MA.A-CED.A.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
MA.A-REI.C.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
MA.A-REI.C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
MA.A-REI.D.12	Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Interdisciplinary Connections

LA.W.9-10.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.

Technology Standards

TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.12.D.CS3	Exhibit leadership for digital citizenship.
TECH.8.1.12.E.CS4	Process data and report results.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.1.12.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.
TECH.8.2.12.C.CS2	The application of engineering design.

21st Century Themes/Careers

CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.

Financial Literacy Integration

PFL.9.1.12.C.1	Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.

Instructional Strategies & Learning Activities

- Use graphing calculator to explore tables.
- Spend time with modeling activities.
- Spend at least one day dedicated to modeling problems
- Use problems and activities from book involving modeling problems
- ~~Provide access to online book~~
- Provide ~~access to~~ book pages and problems through Canvas and Twitter
- Provide access to review keys
- ~~Assign ExamView Questions to provide practice and assessment.~~
- Use Delta Math for practice and assessments.

Formative Assessments

- Daily homework checks
- ~~ExamView Questions~~
- Delta Math assignments
- ~~Chapter~~ Unit Test
- Exit Tickets
- Warm-ups
- ~~Canvas~~ Quizzes

Summative Assessment

- Unit Test

Resources & Technology

- google docs, spreadsheets, slides

- TI graphing calculator
- document camera
- Chromebooks
- websites: Desmos, EdPuzzle
- Delta Math
- Teacher Created YouTube Videos
- Promethean Board

Benchmark Assessments

Students will take NJSLA Algebra 2 Benchmark A