

Richmond Public Schools
Department of Curriculum and Instruction
Curriculum Pacing And Resource Guide – Unit Plan



Course Title/ Course #: Algebra 1

Unit Title/ Marking Period # (MP#1): Solving Linear Equations

Start day:

Meetings (Length of Unit): 4

<i>Desired Results ~ What will students be learning?</i>	
<u>Standards of Learning/ Standards</u>	
A.4	The student will solve multistep linear and quadratic equations in two variables, including <ol style="list-style-type: none">solving literal equations (formulas) for a given variablejustifying steps used in simplifying expressions and solving equations, using field properties and axioms of equality that are valid for the set of real numbers and its subsetssolving multistep linear equations algebraically and graphically
<u>Essential Understandings/ Big Ideas</u>	
	<ul style="list-style-type: none">A solution to an equation is the value or set of values that can be substituted to make the equation true.The solution of an equation in one variable can be found by graphing the expression on each side of the equation separately and finding the x-coordinate of the point of intersection.Real-world problems can be interpreted, represented, and solved using linear and quadratic equations.The process of solving linear and quadratic equations can be modeled in a variety of ways, using concrete, pictorial, and symbolic representations.Properties of real numbers and properties of equality can be used to justify equation solutions and expression simplification.
<u>Key Essential Skills and Knowledge</u>	
	<ul style="list-style-type: none">Solve a literal equation (formula) for a specified variable.Simplify expressions and solve equations, using the field properties of the real numbers and properties of equality to justify simplification and solution.Solve multistep linear equations in one variable.

- Confirm algebraic solutions to linear equations, using a graphing calculator.
- Determine if a linear equation in one variable has one, an infinite number, or no solutions.

Vocabulary

<p>Literal Equations:</p> <p>Isolate Solve for Multi-variable equation Reciprocal (Divide by $\frac{1}{2}$ = Multiply by 2) Formula</p>	<p>Solving Multi-Step Equations:</p> <p>Solve for Combine Like Terms (Substitution Property) Properties of Real Numbers Properties of Equality</p>	<p>Properties of Real Numbers:</p> <p>Commutative Property (+, x) Associative Property (+, x) Distributive Property Substitution Property Inverse Property (+, x) Identity Property (+, x) Zero Product Property</p> <p>Properties of Equality:</p> <p>Addition Property of Equality Multiplication Property of Equality Symmetric Property Reflexive Property Transitive Property</p>
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Assessment Evidence ~ What is evidence of mastery? What did the students master & what are they missing?

Assessment/ Evidence

Mulligan Checkpoint A.4

PowerSchool

Learning Plan ~ What are the strategies and activities you plan to use?

Learning Experiences/ Best Practice

Create Foldable or Graphic organizers for vocabulary

- Properties of Real Numbers with Examples
- Properties of Equality with Examples

All Things Algebra → Multi-step Equations & Inequalities → Activities

- Multi-Step Equations – Koosh Ball Game
- Multi-Step Equations – Math Lib Activity
- Multi-Step Equations – Turkey – Trot Bingo
- Algebraic Proportions Dice Activity
- Multi-Step Equations Find Someone Who
- Multi-Step Equations Scavenger Hunt
- Multi-Step Equations Task Cards with QR Codes

Technology Integrations

Gizmo
 Khan Academy
 Virtual Nerd
 Discovery Education

Resources

Text

Virginia Glencoe, Algebra I, ©2012, Carter, et al,
 McGraw-Hill School Education Group, page(s) 126 – 130 (A.4a), 16 – 30 (A.4b), 83 – 102 (A.4d)

Coach book, Virginia edition, page(s) 58 – 63, 67- 71

Mulligan Math in Minutes A.4

All Things Algebra → Multi-Step Equations & Inequalities → Unit Bundle

- Notes, homework, quizzes (problems can be used for exit tickets)

Technology

- Gizmo

- [A.4a Solving Formulas for any variable](#)
- [A.4d Modeling and Solving Two-Step Equations](#)
- [A.4d Solving Equations by Graphing on Each Side](#)

- [A.4d Solving Two-Step Equations](#)

- Virtual Nerd

- [Solving Linear Equations](#)
- [Properties of Equality](#)

- Discovery Education

- [Solving Linear Equations](#)

- PBS Learning Media

- [The Yo-Yo Problem \(Solving Linear Equations\)](#)
 - [Video for Lesson](#) (for teacher use)
- [Solving Linear Equations](#)

Virginia Department of Education

[Solve for the Unknown](#)

[Cover-Up Problems](#)

[Algebra Tiles and Problem Solving](#)

[Solving Linear Equations](#)

Cross Curricular Connection

[Cross Curricular Math Tips that Rock](#) Basic and easy ways to link any math topic to other subjects

English – Have students write a step-by-step instruction document on how to solve a linear equation using the properties of real numbers and equality to justify the steps.

Science

- The formula for volume can be solved for mass or density to help with the solving process.

History

- Students need to justify and defend arguments when holding a debate. History also deals with determine what is fair and how to balance supplies which relates to balancing an equation.