

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

Desired Results ~ What will students be learning?

Standards of Learning/ Standards

A.7a-c, e-f

The student will investigate and analyze function (linear and quadratic) families and their characteristics both algebraically and graphically, including

- a) determining whether a relation is a function;
- b) domain and range;
- c) zeros of a function;
- e) finding the values of a function for elements in its domain; and
- f) making connections between and among multiple representations of functions including concrete, verbal, numeric, graphic, and algebraic.

Essential Understandings/ Big Ideas

- A set of data may be characterized by patterns, and those patterns can be represented in multiple ways.
- Graphs can be used as visual representations to investigate relationships between quantitative data.
- Inductive reasoning may be used to make conjectures about characteristics of function families.
- Each element in the domain of a relation is the abscissa of a point of the graph of the relation.
- Each element in the range of a relation is the ordinate of a point of the graph of the relation.
- A relation is a function if and only if each element in the domain is paired with a unique element of the range. The values of $f(x)$ are the ordinates of the points of the graph of f .
- The object $f(x)$ is the unique object in the range of the function f that is associated with the object x in the domain of f .
- For each x in the domain of f , x is a member of the input of the function f , $f(x)$ is a member of the output of f , and the ordered pair

$[x, f(x)]$ is a member of f .

- An object x in the domain of f is an x -intercept or a zero of a function f if and only if $f(x) = 0$.
- Set builder notation may be used to represent domain and range of a relation.

Key Essential Skills and Knowledge

- Determine whether a relation, represented by a set of ordered pairs, a table, or a graph is a function.
- Identify the domain, range, zeros, and intercepts of a function presented algebraically or graphically.
- For each x in the domain of f , find $f(x)$.
- Represent relations and functions using concrete, verbal, numeric, graphic, and algebraic forms. Given one representation, students will be able to represent the relation in another form.
- Detect patterns in data and represent arithmetic and geometric patterns algebraically.

Vocabulary

Relation
Function
Ordered Pairs
Table
Mapping
Graph
Vertical Line Test
Domain
Range
Set Builder Notation
Zeros
Elements of a set
Verbal Equations
Numeric Equations
Arithmetic pattern
Geometric patten

Assessment Evidence ~ What is evidence of mastery? What did the students master & what are they missing?

Assessment/ Evidence

Mulligan Checkpoint A.7

PowerSchool

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

Learning Experiences/ Best Practice

Create a foldable for vocabulary/topics in the unit

All Things Algebra → Relations & Functions → Activities

- Evaluating Functions & Zeros Smart Board Lesson
- Relations & Functions Smart Board Lesson
- Evaluating Functions Scavenger Hunt
- Evaluating Functions Task Cards with QR Codes
- Functions Find Someone Who
- Relations & Functions Task Cards
- Arithmetic Sequences Task Cards

All Things Algebra → Linear Equations → Activities

- Graphing Linear Equations Bingo
- Graphing Linear Equations Choice Board
- Graphing Linear Equations Line-Up
- Graphing Linear Equations Scavenger Hunt
- Line Match Activity
- Matching Graphs & Equations (Cut & Paste Activity)

Technology Integrations

Gizmo

Khan Academy

Virtual Nerd

Discovery Streaming

Resources

Text

Virginia Glencoe, Algebra I, ©2012, Carter, et al,
McGraw-Hill School Education Group, page(s) 45 – 53(A.7a), 38 – 44(A.7b), 161 – 165(A.7c), 48 – 49(A.7e), A.7f included throughout A.7a-c and e

Coach book, Virginia edition, page(s) 154 - 175

Mulligan Math in Minutes A.7

All Things Algebra → Relations & Functions → Unit Bundle

All Things Algebra → Linear Equations (Graphing Linear Equations) → Unit Bundle

Technology

- Gizmo
 - [A.7a Introduction to Functions](#)
 - [A.7a Linear Functions](#)
 - [A.7c Quadratics in Factored Form](#)
 - [Roots of a Quadratic](#)
 - [A.7f Points, Lines, and Equations](#)
- Khan Academy
 - [Functions](#)
- Virtual Nerd
 - [Relations & Functions](#)
- Discovery Streaming
 - [Functions – Many Available](#)

Virginia Department of Education

[Square Patios](#)

[Functions 1](#)

[Functions 2](#)

[Factoring for Zeros](#)

Cross Curricular Connection

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

History

- Supply and demand, votes for presidential elections, etc. can be represented as graphs and tables.

English

- Have students write everything they know about a given function (for example $y=2x - 3$) using vocabulary from the unit.

Science

- Topics such as velocity, distance and time can be represented using tables and graphs.