# 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#3): Direct & Inverse Variation**

**Start day:**

**Meetings (Length of Unit): 3 days**

## *Desired Results ~ What will students be learning?*

### Standards of Learning/ Standards

A.8 The student, given a situation in a real-world context, will analyze a relation to determine whether a direct or inverse variation exists, and represent a direct variation algebraically and graphically and an inverse variation algebraically.

### Essential Understandings/ Big Ideas

- The constant of proportionality in a direct variation is represented by the ratio of the dependent variable to the independent variable
- The constant of proportionality in an inverse variation is represented by the product of the dependent variable and the independent variable.
- A direct variation can be represented by a line passing through the origin.
- Real-world problems may be modeled using direct and/or inverse variations.

### Key Essential Skills and Knowledge

- The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- Given a situation, including a real-world situation, determine whether a direct variation exists.
- Given a situation, including a real-world situation, determine whether an inverse variation exists.
- Write an equation for a direct variation, given a set of data.
- Write an equation for an inverse variation, given a set of data.
- Graph an equation representing a direct variation, given a set of data.

## Vocabulary

Direct Variation
Inverse Variation
Proportion
Independent Variable
Dependent Variable
Origin
Constant Ratio
Constant of Variation
Slope

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

### Assessment/ Evidence

Mulligan Checkpoint A.8

Interactive Achievement

Henrico Practice Quiz

York County Practice Items

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

### Learning Experiences/ Best Practice

Create a foldable comparing and contrasting direct and inverse variation. Include multiple representation of each (equation, equation used to find the constant and graph)

All Things Algebra → Direct & Inverse Variation → Activities

- Direct Variation Bingo
- Direct & Inverse Variation Card Sort Activity
- Direct & Inverse Variation Cut and Paste Activity
- Direct & Inverse Variation Task Cards

## Technology Integrations

Gizmo
Virtual Nerd
Discovery Streaming
Khan Academy
TI-84+ Graphing Calculator

## Resources

**Text**
Virginia Glencoe, Algebra I, ©2012, Carter, et al,
McGraw-Hill School Education Group, page(s) 180 – 186, 669 – 675

Coach book, Virginia edition, page(s) 182 - 197

Mulligan Math in Minutes A.8

**Technology**
- Gizmo
    - Direct & Inverse Variation

- Khan Academy
    - Direct and Inverse Variation

- Virtual Nerd
    - Rational Expressions and Functions

- Discovery Streaming
    - Party Planning

**Virginia Department of Education**
Inverse Variation
Direct Variation

**Other Sites**

Henrico Algebra 1 Online – A.8

## Cross Curricular Connection

History: Economics curriculum covers supply and demand which is a direct variation. This can be used as an example to solve for the constant as well as discuss what a direct variation graph tells a business or consumer about a product.

Real-world examples of direct and inverse variations:
Amount of cars on a thruway and speed the cars are traveling at
Amount of time students spend studying and score on an assessment
Amount of air in a balloon and the volume of the balloon
Etc