

**Course Title/ Course #: Math Grade 7/8**

**Unit Title/ Marking Period # (MP): 2**

**Start day:**

**Meetings (Length of Unit): 5 days**

<i>Desired Results ~ What will students be learning?</i>
<b><u>Standards of Learning/ Standards</u></b>
<b>SOL 8.15b</b> The student will: a. Solve two-step linear inequalities and graph the results on a number line.
<b>SOL 7.15</b> The student will solve one-step inequalities in one variable and graph solutions to inequalities on the number line.
<b><u>Essential Understandings/ Big Ideas</u></b>
<ul style="list-style-type: none"><li>• How does the solution to an equation differ from the solution to an inequality? <i>While a linear equation has only one replacement value for the variable that makes the equation true, an inequality can have more than one.</i></li></ul> <p>The students will understand that:</p> <ul style="list-style-type: none"><li>• <i>The procedures are the same except for the case when an inequality is multiplied or divided on both sides by a negative number. Then the inequality sign is changed from less than to greater than, or greater than to less than.</i></li><li>• <i>In an inequality, there can be more than one value for the variable that makes the inequality true.</i></li></ul>
<b><u>Key Essential Skills and Knowledge</u></b>
<b>SOL 8.15b</b> The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to: <ul style="list-style-type: none"><li>• Solve two-step inequalities in one variable by showing the steps and using algebraic sentences.</li><li>• Graph solutions to two-step linear inequalities on a number line.</li><li>• Represent and demonstrate steps in solving inequalities in one variable, using concrete materials, pictorial representations, and algebraic sentences.</li></ul>

<ul style="list-style-type: none"> <li>Graph solutions to inequalities on the number line.</li> </ul>	
<b><u>Vocabulary</u></b>	
<b><u>Academic Vocabulary</u></b>	<b><u>Content Vocabulary</u></b>
Inverse Operation Solution Inequality Number Line	Variable Replacement Operation Reverse
<b><i>Assessment Evidence ~ What is evidence of mastery? What did the students master &amp; what are they missing?</i></b>	
<b><u>Assessment/ Evidence</u></b>	
<ul style="list-style-type: none"> <li>Mulligan Math check points <b>SOL 8.15b</b></li> <li>Mulligan Math check points <b>SOL 7.15</b></li> <li>Interactive Achievement</li> <li>Compass Learning               <ol style="list-style-type: none"> <li>QZMA7149</li> <li>M8113</li> <li>M8116</li> </ol> </li> <li><a href="#">Inequalities Quiz=</a></li> <li><a href="#">Solving Inequalities by Adding or Subtracting Quiz=</a></li> <li><a href="#">Solving Inequalities by Multiplying or Dividing Quiz=</a></li> </ul>	
<b><i>Learning Plan ~ What are the strategies and activities you plan to use?</i></b>	
<b><u>Learning Experiences/ Best Practice</u></b>	
<b>Teacher Resources:</b> <ul style="list-style-type: none"> <li>Create a foldable on solving addition and subtraction of inequalities.</li> <li>Create a foldable on solving multiplication and division of inequalities.</li> <li>Create a foldable on solving two-step inequalities.</li> </ul>	

- Create a foldable on solving multi-step inequalities.
- Create a foldable on graphing inequalities on a number line.
- Cornell Notes in interactive notebook
- Guided Practice

### **Text**

Virginia Math Connects, Course 3, ©2012, Price, et al, McGraw-Hill School Education Group: page(s) 236-249.

Coach book Grade 7 Virginia Gold edition: page(s) 206-213.

Coach book Grade 8 Virginia Gold edition: page(s) 162-166.

### **Technology Integrations**

#### **Compass Learning:**

- [Solving Inequalities \(MA7146, 7270, 7147, 8111, 8112, 8114, 8115\)](#)

#### **Gizmo:**

- [Solving Linear Inequalities in One Variable](#)
- [Compound Inequalities](#)

#### **Brain Pop: Solving Inequalities**

- [Graphing and Solving Inequalities](#)

#### **Smart Exchange:**

- [Solving Inequalities ppt.](#) [SMART Notebook lesson]
- [Solving Multi-step Equations and Inequalities](#) [SMART Notebook lesson]
- [Graphing Inequalities](#) [SMART Notebook Math Tools lesson]

### **Resources**

#### **Virginia Department of Education**

- [Objective 7.15ab Lesson Plans VDOE](#)
- [Objective 8.15b Lesson Plans VDOE](#)

#### **Other Sites**

- [Linear Inequalities \(tutorial\)](#)
- [Solving Inequalities Notes](#)

- [Henrico 8.15b](#)

**Cross Curricular Connection**

**Science and Technology:**

**Social Studies:**

**English:**

**Materials**

**Manipulatives**

- Algebra Blocks/Tiles
- Hands-On Equation
- Calculators
- 10-Frames
- 2-Color Counters
- Numeral Cards
- Fraction Models
- Decimal Squares

**Technology Resources**

- LCD Projector
- Speakers
- Computer w/Internet Connection and SmartBoard Software
- SmartBoard
- Computer Cart

**Student Supplies**

- Whiteboards/Markers
- Pencil and Paper
- Student Notes
- Guided Notes

**Course Title/ Course #: Math Grade 7/8**

**Unit Title/ Marking Period # (MP): 2**

**Start day:**

**Meetings (Length of Unit): 16 days**

*Desired Results ~ What will students be learning?*

**Standards of Learning/ Standards**

**SOL 8.14**

The student will make connections between any two representations (tables, graphs, words, and rules) of a given relationship.

**SOL 8.16**

The student will graph a linear equation in two variables.

**SOL 8.17**

The student will identify the domain, range, independent variable, or dependent variable in a given situation.

**SOL 7.12**

The student will represent relationships with tables, graphs, rules, and words.

**Essential Understandings/ Big Ideas**

- What is the relationship among tables, graphs, words, and rules in modeling a given situation?  
*Any given relationship can be represented by all four.*
- What types of real life situations can be represented with linear equations?  
*Any situation with a constant rate can be represented by a linear equation.*
- What are the similarities and differences among the terms domain, range, independent variable and dependent variable?  
*The value of the dependent variable changes as the independent variable changes. The domain is the set of all input values for the independent variable. The range is the set of all possible values for the dependent variable*
- Rules that relate elements in two sets can be represented by word sentences, equations, tables of values, graphs or illustrated pictorially.

**Key Essential Skills and Knowledge**

**SOL 8.14**

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to:

- Graph in a coordinate plane ordered pairs that represent a relation.
- Describe and represent relations and functions, using tables, graphs, words, and rules. Given one representation, students will be able to represent the relation in another form.
- Relate and compare different representations for the same relation.

**SOL 8.16**

- Construct a table of ordered pairs by substituting values for  $x$  in a linear equation to find values for  $y$ .
- Plot in the coordinate plane ordered pairs  $(x, y)$  from a table.
- Connect the ordered pairs to form a straight line (a continuous function).
- Interpret the unit rate of the proportional relationship graphed as the slope of the graph, and compare two different proportional relationships represented in different ways.

**SOL 8.17**

- Apply the following algebraic terms appropriately: domain, range, independent variable, and dependent variable.
- Identify examples of domain, range, independent variable, and dependent variable.

- Determine the domain of a function.
- Determine the range of a function.
- Determine the independent variable of a relationship.
- Determine the dependent variable of a relationship.

**SOL 7.12**

- Describe and represent relations and functions, using tables, graphs, rules, and words.
- Given one representation, students will be able to represent the relation in another form.

**Vocabulary**

<b><u>Academic Vocabulary</u></b>	<b><u>Content Vocabulary</u></b>
Relations Functions Substitution Rules Origin Plot Constant Rate Intersections Independent Variable Dependent Variable	Table of Values Graph Linear Equation x-axis y-axis Ordered Pair Coordinate Plane Quadrant Continuous Function Domain Range

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

**Assessment/ Evidence**

- Mulligan Math check points **SOL 8.14**
- Mulligan Math check points **SOL 8.16**
- Mulligan Math check points **SOL 8.17**
- Mulligan Math check points **SOL 7.12**

- Interactive Achievement
  
- Compass Learning
  1. M7241
  2. M7247
  3. M8191
  4. M8194
  
- [Functions Quiz](#)=
  
- [Graphing Linear Functions Quiz 2](#)=
  
- [Domain and Range, Independent and Dependent Variables Quiz](#)

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

**Learning Experiences/ Best Practice**

**Teacher Resources:**

- Create a foldable on identifying the types of graphs.
- Create a foldable on the proper way to graph points.
- Create a foldable on how to graph a linear equation.
- Create a foldable on how to determine the domain and range of a set of points.
- Create a foldable on determining independent and dependent variables.
- Cornell Notes in interactive notebook
- Guided Practice

**Text**

Virginia Math Connects, Course 3, ©2012, Price, et al, McGraw-Hill School Education Group: page(s) 27-29, 33-35, 399-404, and 410-413.

Coach book Grade 7 Virginia Gold edition: page(s) 178-183 and 192-197.

Coach book Grade 8 Virginia Gold edition: page(s) 148-157 and 167-171.

**Technology Integrations**

**Compass Learning:**



- [Graphs and Functions \(7237, 7239, 7240, 7245, 8189, 8192\)](#)

**Gizmo:**

- [Distance-Time Graphs](#)
- [Linear Functions](#)
- [Slope-Intercept Form of a Line](#)
- [Points, Lines, and Equations](#)
- [Introduction to Functions](#)

**Brain Pop: Solving Inequalities**

- [Graphing Linear Equations](#)

**Smart Exchange:**

- [Graphing Linear Equations ppt.](#) [SMART Notebook lesson]
- [Preview of Graphs and Functions ppt.](#)[SMART Notebook lesson]
- [Introduction to Functions ppt.](#)[SMART Notebook lesson]

**Resources**

**Virginia Department of Education**

- [Objective 7.12 Lesson Plans VDOE](#)
- [Objective 8.14 Lesson Plans VDOE](#)
- [Objective 8.16 Lesson Plans VDOE](#)
- [Objective 8.17 Lesson Plans VDOE](#)

**Other Sites**

- Regents Prep-[Vocabulary Lesson](#)
- [Linear & Nonlinear Functions](#) – Instructional Resource
- Illuminations-[Roller Coaster Through Functions](#)-Lesson Plan
- [Henrico 8.14](#)
- [Henrico 8.16](#)
- [Henrico 8.17](#)

**Cross Curricular Connection**

**Science and Technology:**

Student can arrange in order on a graph the sizes of the planets while determining the domain and range.

**Social Studies:**

Student can arrange in order on a graph the populations of the states while determining the domain and range.

**English:**

Student can write a paper on the difference of the types of graphs.

**Materials**

**Manipulatives**

Geoboards  
Numeral Cards  
Algebra Blocks/Tiles  
Hands-On Equation  
Calculators  
10-Frames  
2-Color Counters  
Numeral Cards  
Fraction Models  
Decimal Squares

**Technology Resources**

- LCD Projector
- Speakers
- Computer w/Internet Connection and SmartBoard Software
- SmartBoard
- Computer Cart

**Student Supplies**

- Whiteboards/Markers
- Pencil and Paper
- Student Notes
- Guided Notes

**Course Title/ Course #: Math Grade 7/8**

**Unit Title/ Marking Period # (MP): 2**

**Start day:**

**Meetings (Length of Unit): 14 days**

<i>Desired Results ~ What will students be learning?</i>
<b><u>Standards of Learning/ Standards</u></b>
<b>SOL 8.3</b> The student will: <ul style="list-style-type: none"><li>a. Solve practical problems involving rational numbers, percent's, ratios, and proportions; and</li><li>b. Determine the percent increase or decrease for a given situation.</li></ul>
<b>SOL 7.4</b> The student will solve single-step and multi-step practical problems, using proportional reasoning.
<b>SOL 7.6</b>
<b><u>Essential Understandings/ Big Ideas</u></b>
<ul style="list-style-type: none"><li>• What is the difference between percent increase and percent decrease? Percent increase and percent decrease are both percent's of change measuring the percent a quantity increases or decreases. Percent increase shows a growing change in the quantity while percent decrease shows a lessening change.</li><li>• What is a percent? A percent is a special ratio with a denominator of 100.</li><li>• What makes two quantities proportional? Two quantities are proportional when a change in one quantity corresponds to a predictable change in the other.</li></ul>
<b><u>Key Essential Skills and Knowledge</u></b>
<b>SOL 8.3</b> To be successful with this standard, students are expected to: <ul style="list-style-type: none"><li>• Write a proportion given the relationship of equality between two ratios.</li><li>• Solve practical problems by using computation procedures for whole numbers, integers, fractions, percent's, ratios, and proportions. Some problems may require the application of a formula.</li></ul>

- Maintain a checkbook and check registry for five or fewer transactions.
- Compute a discount or markup and the resulting sale price for one discount or markup.
- Compute the percent increase or decrease for a one-step equation found in a real life situation.
- Compute the sales tax or tip and resulting total.
- Substitute values for variables in given formulas. For example, use the simple interest formula  $I = prt$  to determine the value of any missing variable when given specific information.
- Compute the simple interest and new balance earned in an investment or on a loan for a given number of years.

**SOL 7.4**

The student will use problem solving, mathematical communication, mathematical reasoning, connections and representations to:

- Write proportions that represent equivalent relationships between two sets.
- Solve a proportion to find a missing term.
- Apply proportions to solve practical problems. Calculators may be used.
- Apply proportions to convert units of measurement between the U.S. Customary System and the metric system. Calculators may be used.
- Using 10% as a benchmark, mentally compute 5%, 10%, 15% or 20% in a practical situation such as tips, tax and discounts.
- Solve problems involving tips, tax, and discounts. Limit problems to only one percent computation per problem.

**Vocabulary**

<b><u>Academic Vocabulary</u></b>	<b><u>Content Vocabulary</u></b>
Simple Interest	Ratios
Percent Increase	Proportions
Deposit	Percent's
Sales Tax	Cross Product
Percent Decrease	Equivalent
Markup	Unit Rate
Discounts	Unit Price
Withdrawal	
Balance	

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

**Assessment/ Evidence**

- Mulligan Math check points **SOL 8.3**

- Mulligan Math check points **SOL 7.4**
- Mulligan Math check points **SOL 7.6**
- Interactive Achievement
- Compass Learning
  1. M7063
  2. M7069
  3. M8059
- [Percent of Change Quiz](#)=
- [Solving Proportions](#)=

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

**Learning Experiences/ Best Practice**

**Teacher Resources:**

- Create a foldable on how to determine ratios.
- Create a foldable on solving proportions.
- Create a foldable on defining and solving percent proportions (regular, increase, decrease).
- Cornell Notes in interactive notebook
- Guided Practice

**Text**

Virginia Math Connects, Course 3, ©2012, Price, et al, McGraw-Hill School Education Group: page(s) 285-289, 368-371, and 374-378.

Coach book Grade 7 Virginia Gold edition: page(s) 71-77 and 102-109.

Coach book Grade 8 Virginia Gold edition: page(s) 38-44.

**Technology Integrations**

**Compass Learning:**

- [Solving Practical Problems \(Proportional Reasoning\) \(7061, 7062, 7067, 7068, 76258, 8057, 8058\)](#)

**Gizmo:**

- [Percent of Change](#)
- [Simple and Compound Interest](#)
- [Percent's and Proportions](#)

**Brain Pop: Solving Inequalities**

- [Percent's and Proportions](#)
- [Interest](#)
- [Proportions](#)

**Smart Exchange:**

- [Percent's and Proportions ppt.](#) [SMART Notebook lesson]

**Resources****Virginia Department of Education**

- [Objective 7.4 Lesson Plans VDOE](#)
- [Objective 8.3b Lesson Plans VDOE](#)

**Other Sites**

- [Percent Change](#)
- [Percentage Difference](#)
- Illuminations-[Now and Then](#)-Lesson Plan
- Illuminations-[Who Lost More?](#)-Lesson Plan
- Illuminations-[Off the Scale](#)-Lesson Plan
- Illuminations-[Creating a Two Dimensional Blueprint](#)-Lesson Plan
- Illuminations-[Shops at the Mall](#)-Lesson Plan
- [Henrico 8.3ab](#)

**Cross Curricular Connection****Science and Technology:**

Have students compare the percentages of the gases of the different planets.

**Social Studies:**

Have students compare the percentages of the African-American troops in the civil war.

**English:**

Have students write a paper on the last time they used proportions when shopping.

**Materials****Manipulatives**

**Color Tiles**

**Cubes**

**Cuisenaire Rods**

**Pattern Blocks**

**Tangrams**

**2-Color Counters**

**Fraction Models**

**Technology Resources**

- LCD Projector
- Speakers
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- SmartBoard
- Computer Cart

**Student Supplies**

- Whiteboards/Markers
- Pencil and Paper
- Student Notes
- Guided Notes

**Course Title/ Course #: Math Grade 7/8**

**Unit Title/ Marking Period # (MP): 2**

**Start day:**

**Meetings (Length of Unit): 5 days**

<i>Desired Results ~ What will students be learning?</i>	
<b><u>Standards of Learning/ Standards</u></b>	
<b>SOL 8.12</b> The student will determine the probability of independent and dependent events with and without replacement.	
<b>SOL 7.9</b> The student will investigate and describe the difference between the experimental probability and theoretical probability of an event.	
<b><u>Essential Understandings/ Big Ideas</u></b>	
<ul style="list-style-type: none"><li>• How are the probabilities of dependent and independent events similar? Different? If events are dependent then the second event is considered only if the first event has already occurred. If events are independent, then the second event occurs regardless of whether or not the first occurs.</li> <li>• The students will understand that: Theoretical probability of an event is the expected probability and can be found with a formula. The experimental probability of an event is determined by carrying out a simulation or an experiment. In experimental probability, as the number of trials increases, the experimental probability gets closer to the theoretical probability</li></ul>	
<b><u>Key Essential Skills and Knowledge</u></b>	
<b>SOL 8.12</b> The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to: <ul style="list-style-type: none"><li>• Determine the probability of no more than three independent events.</li><li>• Determine the probability of no more than two dependent events without replacement.</li><li>• Compare the outcomes of events with and without replacement.</li></ul>	
<b><u>Vocabulary</u></b>	
<b><u>Academic Vocabulary</u></b>	<b><u>Content Vocabulary</u></b>



Ratios Proportions	Cross Product Equivalent
<b><i>Assessment Evidence ~ What is evidence of mastery? What did the students master &amp; what are they missing?</i></b>	
<b><u>Assessment/ Evidence</u></b>	
<ul style="list-style-type: none"> <li>• Mulligan Math check points <b>SOL 8.12</b></li> <li>• Mulligan Math check points <b>SOL 7.9</b></li> <li>• Interactive Achievement</li> <li>• Compass Learning <ol style="list-style-type: none"> <li>1. M7255</li> <li>2. M7258</li> <li>3. M8229</li> <li>4. M8232</li> </ol> </li> </ul>	
<b><i>Learning Plan ~ What are the strategies and activities you plan to use?</i></b>	
<b><u>Learning Experiences/ Best Practice</u></b>	
<p><b>Teacher Resources:</b></p> <ul style="list-style-type: none"> <li>• Create a foldable on solving independent events.</li> <li>• Create a foldable on solving dependent events.</li> <li>• Cornell Notes in interactive notebook</li> <li>• Guided Practice</li> </ul> <p><b>Text</b>  Virginia Math Connects, Course 3, ©2012, Price, et al, McGraw-Hill School Education Group: page(s) 813-818.   Coach book Grade 7 Virginia Gold edition: page(s) 140-146.  Coach book Grade 8 Virginia Gold edition: page(s) 108-111.</p>	
<b><u>Technology Integrations</u></b>	
<p><b>Compass Learning:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Probability (7253, 7254, 8227, 8228)</a></li> </ul>	

<p><b>Gizmo:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Theoretical and Experimental Probability</a></li> </ul> <p><b>Smart Exchange:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Probability and Data Analysis ppt.</a> [SMART Notebook lesson]</li> </ul>		
<b><u>Resources</u></b>		
<p><b>Virginia Department of Education</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Objective 7.9 Lesson Plans VDOE</a></li> <li>• <a href="#">Objective 8.12 Lesson Plans VDOE</a></li> </ul> <p><b>Other Sites</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Types of Events Notes</a></li> <li>• <a href="#">Tree Diagram Notes</a></li> <li>• <a href="#">Conditional Probability</a></li> <li>• <a href="#">Henrico 8.12</a></li> </ul>		
<b><u>Cross Curricular Connection</u></b>		
<p><b>Science and Technology:</b> Have students determine how chromosomes determine the sex of babies.</p> <p><b>Social Studies:</b> Have students determine how the Civil War may have been different if African-American troops never got involved.</p> <p><b>English:</b> Have students write how probability has effected circumstances dealing with the grades they are receiving.</p>		
<b><u>Materials</u></b>		
<p><b><u>Manipulatives</u></b></p> <p>Color Tiles Cubes Cuisenaire Rods Pattern Blocks Tangrams 2-Color Counters Fraction Models</p>	<p><b><u>Technology Resources</u></b></p> <ul style="list-style-type: none"> <li>• LCD Projector</li> <li>• Speakers</li> <li>• Computer w/Internet Connection and SmartBoard Software</li> <li>• SmartBoard</li> <li>• Computer Cart</li> </ul>	<p><b><u>Student Supplies</u></b></p> <ul style="list-style-type: none"> <li>• Whiteboards/Markers</li> <li>• Pencil and Paper</li> <li>• Student Notes</li> <li>• Guided Notes</li> </ul>