Algebra I Part 1

Curriculum Guide

Scranton School District

Scranton, PA

updated 2022-2023

Algebra I Part A

Prerequisite :

- Successful completion of Common Core Math 8.

Intended Audience: This course is designed for the student who has successfully completed Common Core Math 8 by the end of the 8th grade.

Algebra I Part A and Algebra I Part B/K together create an Algebra I course taken over two years. The students who select Algebra I Part A in ninth grade will complete their studies of Algebra I when they complete the Algebra I Part B/K course in tenth grade. These Algebra courses are designed for students who may experience difficulty with a one year Algebra I course Topics covered focus on the Pennsylvania Common Core Standards and are parallel to the Algebra I course, presenting all the same major topics but with a different depth, breadth, and pace, thus allowing time for discovering and understanding basic concepts.

At the culmination of the Algebra I Part B Keystone, the students will sit for the Keystone Algebra I Exam, a Pennsylvania graduation requirement. After successfully completing both courses, students will be allowed to enroll in Applied Geometry.

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Year-at-a-glance

Subject: Algebra I Part A	Grade Level: 9	Date Completed: 5-23-23

1st Quarter

Topic	Resources	CCSS
Review Pre-Algebra Skills: Evaluating and simplifying expressions, order of operations, integer operations, exponential and standard notation, simplifying basic square roots, reviewing properties of real numbers. **Including order of operations and algebraic expressions**	**Big Ideas online teacher resources** **Reveal Alg 1 Vol 1 Mod 1.1,1.2**	**CC.2.1.8.E.1** **CC.2.1.8.E.4** **CC.2.2.8.B.1**
Represent and use numbers in equivalent forms	**Keystone Finish line workbook**	**A1.1.1.1.1**
Properties of Real numbers	**Reveal Alg 1 Mod 1.3**	**A1.1.1.1.1**
Distributive Property	**Reveal Alg 1 Mod 1.4**	**CC.2.2.7.B.1**

2nd Quarter

Topic	Resources	CCSS
Linear equations	**Big Ideas Alg 1** **Chapter 1** **Keystone Finish Line WB Unit 3 Lesson 1** **Reveal Alg 1 Vol 1 Mod 2.1-2.4, 2.7**	**A1.1.2.1.2**
Linear Inequalities	**Big Ideas Alg 1** **Chapter 2** **Keystone Finish Line WB Unit 4 Lesson 1** **Reveal Alg 1 Vol 1 Mod 2.5, 6.1-6.4**	**A1.1.3.1.3, A1.1.3.1.2, A1.1.3.1.1**

3rd Quarter

Topic	Resources	CCSS
Functions	**Big Ideas Alg I** **Chapter 3.1- 3.5** **Keystone Finish Line WB** **Unit 5 Lesson 2** **Reveal Alg 1 Vol 1 Mod 3.1-3.3**	**A1.2.1.1.3,A1.2.1.1.2,** **A1.2.2.1.1**
Rate of Change	**Big Ideas Alg I** **Chapter 3.2-3.5** **Reveal Alg 1 Vol 1 Mod 4.1-4.2**	**A1.2.2.1.1, A1.2.2.1.2**

4th Quarter

Topic	Resources	CCSS
Linear Equations with two variables	**Big Ideas Alg I** **Chapter 4.1-4.5** **Reveal Alg 1 Vol 1 Mod 4.1-4.3, 5.1-5.4**	**A1.2.2.1.3, A1.2.2.1.4, A1.1.2.1.3, A1.2.1.2.1, A1.2.1.2.2 A1.2.2.2.1, A1.2.3.2.3**
Linear Inequalities in two variables	**Big Ideas Chapter 5.6**	**A1.1.2.1**

General Topic	Academic Standard(s)	Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time
Review **Pre-Algebra Skills: Evaluating and simplifying expressions, order of operations, integer operations, exponential and standard notation, simplifying basic square roots, reviewing properties of real numbers. Including order of operations and algebraic expressions**	**CC.2.1.8.E.1 Distinguish between rational and irrational numbers using their properties.** **CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers.** **CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.**	*Apply concepts of rational and irrational numbers.* *Apply concepts of radicals and integer exponents to generate equivalent expressions*.	**Supplemental materials** **Reveal Alg 1 Mod 1.3**		**25 days**
Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, square roots, and exponents).	**A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed.**	*Compare and order rational and irrational numbers using <, =, >.* *Write numerical and algebraic expressions from verbal expressions.*	**Keystone Algebra I Workbook: Chapter 1 Section 1** **Reveal Alg 1 Vol 1 1.1, 1.2**		**5 days**
Use Estimation strategies in problem-solving situations	**A1.1.1.4.1 Use estimation to solve problems**	*Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or*	**Use throughout the year Keystone Finish Line WB unit 2 Lesson 1**		**5 days**

		graphical representations.			
Linear Equations	**A1.1.2.1.2** **Use and/or identify an algebraic property to justify any step in an equation-solving process.** **Note: Linear equations only**	*Vocabulary:* ● *Additive inverse* ● *Multiplicative Inverse* ● *Commutative property* ● *Associative Property* ● *Identity Property* ● *Distributive Property* ● *Multiplicative Property of Zero* ● *Additive Property of Equality* ● *Multiplicative Property of Equality*	**Big Ideas Chapter 1** **Reveal ALgebra I Vol 1** **Mod 1.3, 1.4**		**25 days**
		Solve linear equations involving absolute value	**Big Ideas Chapter 1**		**5 days**
		Write and/or solve proportions	**Supplemental Materials** **Reveal Alg 1 Vol 1 2.6**		**5 days**

	A1.1.2.1.1 **Write, solve, and/or apply a linear equation (including problem situations).**	*Solving one-step equations, multi-step equations, and equations with variables on both sides.* *Solving Formulas.*	**Big Ideas Chapter 1** **Reveal Alg 1 Vol 1 Mod 2.1-2.4, 2.7**		**10 days**
Linear Inequalities	**A1.1.3.1.2** **Identify or graph the solution set to a linear inequality on a number line.**	*Solve and graph one-step inequalities.*	**Big Ideas Chapter 2** **Reveal Alg 1 Vol 1 6.1**		**15 days**
	A1.1.3.1.3 **Interpret solutions to the problems in the context of the problem situations. Note: Linear inequalities only.**	*Solve one and two-step inequalities and graph and interpret the solutions.*	**Big Ideas Chapter 2** **Reveal Alg 1 Vol 1 6.1-6.2**		**5 days**
	A1.1.3.1.1 **Write or solve compound inequalities and/or graph their solution sets on a number line (may include absolute value Inequalities).**	*Solve compound inequalities and graph and interpret the solutions.*	**Big Ideas Chapter 2** **Reveal Alg 1 Vol 1 2.5, 6.3-6.4**		**5 days**

Functions	**A1.2.1.1.3** **Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table).**	*Vocabulary:* ● *Range* ● *Domain*	**Big Ideas Chapter 3.1** **Reveal Alg 1 Vol 1 3.1**		**10 days**
	A1.2.1.1.2 **Determine whether a relation is a function, given a set of points or a graph.**	*Identifying functions.*	**Big Ideas Chapter 3.1** **Reveal Alg 1 Vol 1 3.2**		
	A1.2.1.1.1 **Analyze a set of data for the existence of a pattern and represent the pattern Algebraically and/or graphically.**	*Determine Linearity and Continuity of graphs.*	**Big Ideas Chapter 3.1** **Reveal Alg 1 Vol 1 3.3**		
Rate Of Change	**A1.2.2.1.1** **Identify, describe, and/or use constant rates of change.**	*Graphing linear functions and finding the slope.* *Vocabulary:* ● *Slope* ● *rate of change*	**Big Ideas Chapter 3.2** **Reveal Alg 1 Vol 1 4.1**		**10 days**
	A1.2.2.1.2 **Apply the concept of linear rate of change (slope) to solve problems.**	*Use slope and formula for slope to solve problems.*	**Big Ideas Chapter 3.2-3.5** **Reveal Alg 1 Vol 1 4.2**		

Linear Equations with two variables	**A1.2.2.1.3 Write or identify a linear equation when given the graph of the line, two points on the line, or the slope and a point on the line.**	*Write or identify a linear equation when given* ● *The graph of the line,* ● *Two points on the line, or* ● *The slope and a point on the line.* ● *Parallel and Perpendicular Lines* *Note: Linear equations may be in point-slope, standard, and/or slope-intercept form.*	**Big Ideas Chapter 4.1-4.3** **Reveal Alg 1 Vol 1 4.3, 5.1-5.2**		**25 days**
	A1.2.2.1.4 Determine the slope and/or y-intercept represented by a linear equation or graph.	*Finding slope and y-intercept.*	**Big Ideas Chapter 3.2-3.5** **Reveal Alg 1 Vol 1 4.3**		
	A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only.	*Use the slope and intercepts to answer questions in the context of the problem.*	**Big Ideas-Use throughout the unit** **Reveal Alg 1 Vol 1 4.3, 5.1, 5.2**		

	A1.2.1.2.1 **Create, interpret, and/or use the equation, graph, or table of a linear function.**	*Understand the relationship between an equation, graph, and table.*	**Big Ideas Chapter 3.2-3.5** **Use throughout** **Reveal Alg 1 Vol 1 Mod 4.1-4.3**		
	A1.2.1.2.2 **Translate from one representation of a linear function to another.**	*Graph a function from a table or equation.*	**Big Ideas Alg I** **Chapter 4.1-4.3** **Use throughout** **Reveal Alg 1 Vol 1 Mod 4.1-4.3**		
Scatter plot- Line of Best Fit	**A1.2.2.2.1** **Draw, identify, find, and/or write an equation for a line of best fit for a scatter plot.**	*Interpret functions in terms of the situations they model.*	**Big Ideas Alg I** **Chapter 4.4, 4.5** **Reveal Alg 1 Vol 1 Mod 5.3**		**5 days**
	A1.2.3.2.3 **Use data displays in problem solving settings and/or to make predictions.**	*Make predictions using the equations or graphs of best-fit lines of scatter plots*	**Keystone Finish Line WB** **Unit 7 Sections 1-4** **Reveal Alg 1 Vol 1 Mod 5.4**		
Use measures of dispersion to describe a set of data	**A1.2.3.1.1** **Calculate and/or interpret the range, quartiles, and interquartile range of data**	*Summarize, represent, and interpret data on a single count or measurement variable.* *Analyze linear models to make interpretations based on the data.*	**Keystone Finish Line WB** **Unit 7 Sections 1-4** **Big Ideas Alg I** **Chap 11.1 – 11.2** **Reveal Alg 1 Vol 2 Mod 12.1-12.2**		**25 days**

Use data displays in the problem-solving settings and/or to make predictions	**A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation.**	*Summarize, represent, and interpret data on a single count or measurement variable.*	**Keystone Finish Line WB Unit 7 Sections 1-4 Big Ideas Alg I Chap 11.1 – 11.3 Reveal Alg 1 Vol 2 Mod 12.1-12.2**		
	A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data	*Interpret box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations.*	**Keystone Finish Line WB Unit 7 Sections 1-4 *Big Ideas Alg I Chap 11.1 – 11.3 Reveal Alg 1 Vol 2 Mod 12.4**		
Apply Probability to practical situations	**A1.2.3.3.1 Apply probability to practical situations.**	*Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.*	**Keystone Finish Line WB Unit 7 Lesson 5**		
				Total Days	**180**