SUBJECT: Algebra 1	GRADE: 9-12
Unit 1: Properties of Real Numbers	**Time Frame: 3 Weeks**

UNIT OVERVIEW

In this unit, we will learn about:

- Adding and Subtracting Fractions
- Multiplying and Dividing Fractions
- Adding and Subtracting Real Numbers
- Combining Like Terms
- Multiplying and Dividing Real Numbers
- Distributive Property
- Simplifying Square Roots
- Scientific Notation

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.1.HS.F.2

COMPETENCIES	LEARNING TARGETS
Numbers and Operations-Fraction I can find common factors and multiples to represent, compare, and calculate quantities using fractions.	• I can compare and order numbers in different forms. (K1MAB2K1) • I can perform operations with fractions. (K1MAB2K2) • I can simplify square roots. (K1MAB2K3)
Operations and Expressions I can generate equivalent expressions using operations and mathematical properties.	• I can simplify absolute value expressions. (K1MAB4K1) • I can identify algebraic properties. (K1MAB4K2) • I can perform operations with real numbers. (K1MAB4K3)

SUBJECT: Algebra 1	GRADE: 9-12
Unit 2: Expressions, Equations, Functions	**Time Frame: 3 Weeks**

UNIT OVERVIEW

In this unit, we will learn about:

- Order of Operations, Expressions & Mathematical Statements
- Patterns and Relationships
- Functions

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.1.HS.F.3 CC.2.2.HS.D.2 CC.2.2.HS.C.2 CC.2.2.HS.C.3

COMPETENCIES	LEARNING TARGETS
Operations and Expressions I can generate equivalent expressions using operations and mathematical properties.	• I can simplify and evaluate expressions using the order of operations. (K1MAB4K4) • I can write variable expressions. (K1MAB4K5)
Sequences and Series I can identify, describe, and represent various types of sequences and series.	• I can identify and/or use a rule for the nth term of an arithmetic sequence. (K1MAB14K1)
Patterns, Functions, and Multiple Representations I can identify, create, and evaluate functions using multiple representations.	• I can determine whether a relation is a function. (K1MAB6K1) • I can identify the domain and range of a relation. (K1MAB6K2) • I can graph a function given a rule and a domain. (K1MAB6K2)

SUBJECT: Algebra 1	GRADE: 9-12
Unit 3: Solving Linear Equations	**Time Frame: 5 Weeks**

UNIT OVERVIEW

In this unit, we will learn about:

- Solving One-Step Linear Equations with Addition, Subtractions, Division and Multiplication
- Solving Two-Step Equations
- Solving Equations with Variables on Both Sides
- Solving Proportions using Cross Products
- Rewriting Linear Equations as Functions
- Word Problems Proportions
- Percent Equations
- Percent of Change and Unit Rate
- Solving Problems by Writing Equations

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.1.HS.F.3 CC.2.1.HS.F.4 CC.2.2.HS.D.2 CC.2.2.HS.D.8 CC.2.2.HS.D.10
COMPETENCIES	**LEARNING TARGETS**
Equations and Inequalities I can create and solve equations and inequalities that represent mathematical situations.	• I can solve algebraic equations. (K1MAB5K1) • I can rewrite equations in function form (slope-intercept form). (K1MAB5K2) • I can solve for a specific variable when an equation has multiple variables. (K1MAB5K3) • I can solve problems using percentages. (K1MAB5K4) • I can calculate unit rates and compare unit rates to be a smarter consumer. (K1MAB5K5)

	• I can represent a real-life situation using an algebraic equation. (K1MAB5K6)
Ratios and Proportional Relationships I can find common factors and multiples to represent, compare, and calculate quantities using fractions.	• I can solve proportions. (K1MAB3K1)

SUBJECT: Algebra 1	**GRADE: 9-12**
Unit 4: Graphing Linear Equations	**Time Frame: 3 Weeks**
UNIT OVERVIEW	
In this unit, we will learn about: • The Coordinate Plane • Graphing Linear Equations with Tables • X and Y-Intercepts • The Slope of a Line • Slope-Intercept Form (y=mx+b)	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.1.HS.F.3 CC.2.2.HS.D.7 CC.2.2.HS.D.8 CC.2.2.HS.D.10 CC.2.2.HS.C.1 CC.2.2.HS.C.2
COMPETENCIES	**LEARNING TARGETS**
Graphing	• I can graph linear equations using tables. (K1MAB7K1)

I can create and interpret graphs as visual representations of the relationship between quantities.	• I can find x-intercepts and y-intercepts and use them to graph linear equations. (K1MAB7K2) • I can graph linear equations using slope-intercept form. (K1MAB7K3)
Patterns, Functions, and Multiple Representations I can identify, create, and evaluate functions using multiple representations.	• I can find and compare slopes. (K1MAB6K4) • I can use function notation. (K1MAB6K5)

SUBJECT: Algebra 1	**GRADE: 9-12**
Unit 5: Writing Linear Equations	**Time Frame: 3 Weeks**

UNIT OVERVIEW

In this unit, we will learn about:

- Writing Equations of Lines (when given a graph, a slope and y-intercepts, or a slope and a point)
- Writing Equations of Lines given Two Points (including both intercepts)
- Writing Linear Equations of Parallel Lines
- Writing Linear Equations of Perpendicular Lines
- Horizontal and Vertical Lines
- Writing Linear Equations in Standard Form (Ax+ By=C)
- Scatter Plots and Line of Best Fit
- Writing Linear Equations for Real-Life Situations

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Honesty, Integrity and Responsibility 9-12: Student conference regarding assignments (D3C) • Resilience and Grit 9-12: Student conference regarding	CC.2.1.HS.F.3 CC.2.2.HS.D.7 CC.2.2.HS.D.8 CC.2.2.HS.D.10

taking advantage of opportunities for improvement (D4C) ● Collaboration and Teamwork 9-12: Student conference regarding collaboration (S1C) ● Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	
COMPETENCIES	**LEARNING TARGETS**
Measurement, Data, and Statistics I can collect, represent, analyze, and interpret data.	● I can graph scatter plots when given a set of data, draw lines of best fit, and write equations of lines of best fit. (K1MAB10K1)
Equations and Inequalities I can create and solve equations and inequalities that represent mathematical situations.	● I can write equations of lines when given a slope and y-intercept, a graph, or a slope and a point. (K1MAB5K7) ● I can write equations of lines when given two points or both intercepts. (K1MAB5K8) ● I can write equations of parallel and perpendicular lines. (K1MAB5K9) ● I can write equations of horizontal lines and vertical lines. (K1MAB5K10) ● I can write equations of lines in standard form. (K1MAB5K11) ● I can write an equation in two-variables to model a real-life situation. (K1MAB5K12)

SUBJECT: Algebra 1	**GRADE: 9-12**
Unit 6: Solving and Graphing Linear Inequalities	**Time Frame: 3 Weeks**
UNIT OVERVIEW	
In this unit, we will learn about:	

- Writing, Solving, and Graphing Inequalities
- Solving and Graphing Multi-Step Inequalities
- Compound Inequalities
- Solving Absolute Value Equations
- Solving Absolute Value Inequalities
- Inequalities with Two Variables

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.1.HS.F.3 CC.2.1.HS.F.4 CC.2.2.HS.D.7 CC.2.2.HS.D.8 CC.2.2.HS.D.9 CC.2.2.HS.D.10
COMPETENCIES	**LEARNING TARGETS**
Equations and Inequalities I can create and solve equations and inequalities that represent mathematical situations.	• I can write and solve one-variable inequalities. (K1MAB5K13) • I can write and solve compound inequalities. (K1MAB5K14) • I can solve absolute value equations. (K1MAB5K15) • I can solve absolute value inequalities. (K1MAB5K16)
Graphing I can create and interpret graphs as visual representations of the relationship between quantities.	• I can graph inequalities on a number line. (K1MAB7K4) • I can graph inequalities on a coordinate plane. (K1MAB7K5)

SUBJECT: Algebra 1	**GRADE: 9-12**
Unit 7: Systems of Linear Equations and Inequalities	**Time Frame: 4 Weeks**
UNIT OVERVIEW	

In this unit, we will learn about:

- Solving Systems by Graphing
- Solving Systems using Substitution
- Solving Systems using Elimination
- Solving/Graphing Systems of Linear Inequalities

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.1.HS.F.3 CC.2.1.HS.F.4 CC.2.2.HS.D.7 CC.2.2.HS.D.8 CC.2.2.HS.D.9 CC.2.2.HS.D.10
COMPETENCIES	**LEARNING TARGETS**
Equations and Inequalities I can create and solve equations and inequalities that represent mathematical situations.	• I can solve systems of equations using substitution and/or elimination. (K1MAB5K17) • I can interpret real-life solutions using systems of equations. (K1MAB5K18) • I can interpret real-life solutions using systems of inequalities. (K1MAB5K19)
Graphing I can create and interpret graphs as visual representations of the relationship between quantities.	• I can solve systems of equations by graphing. (K1MAB7K6) • I can graph systems of inequalities. (K1MAB7K7)

SUBJECT: Algebra 1	**GRADE: 9-12**
Unit 8: Properties of Exponents	**Time Frame: 3 Weeks**
UNIT OVERVIEW	

In this unit, we will learn about the Properties of Exponents:

- Product Property, Power of a Power Property, Power of a Product Property
- Quotient Property, Power of a Quotient Property
- Zero Property, Negative Property

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	
COMPETENCIES	**LEARNING TARGETS**
Operations and Expressions I can generate equivalent expressions using operations and mathematical properties.	• I can simplify expressions using the multiplication properties of exponents. (K1MAB4K6) • I can represent numbers in scientific notation and standard form. (K1MAB4K7) • I can simplify expressions using the division properties of exponents. (K1MAB4K8) • I can simplify expressions using the zero and negative properties of exponents. (K1MAB4K9)

SUBJECT: Algebra 1	**GRADE: 9-12**
Unit 9: Polynomials and Factoring	**Time Frame: 4 Weeks**

UNIT OVERVIEW

In this unit, we will learn about:

- Adding and Subtracting Polynomials
- Greatest Common Factor (GCF) and Least Common Multiple (LCM)

- Multiplying Polynomials
- Factoring Polynomials
- Solve by Factoring
- Simplifying Rational Expressions (by Factoring)

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.2.HS.D.2 CC.2.2.HS.D.3 CC.2.2.HS.D.6
COMPETENCIES	**LEARNING TARGETS**
Operations and Expressions I can generate equivalent expressions using operations and mathematical properties.	• I can add and subtract polynomials. (K1MAB4K10) • I can find the least common multiple and greatest common factor of polynomials. (K1MAB4K11) • I can factor out the greatest common factor of a polynomial. (K1MAB4K12) • I can multiply polynomials. (K1MAB4K13) • I can factor polynomials. (K1MAB4K14) • I can simplify rational expressions. (K1MAB4K15)
Equations and Inequalities I can create and solve equations and inequalities that represent mathematical situations.	• I can solve quadratic equations by factoring. (K1MAB5N5)

SUBJECT: Algebra 1	**GRADE: 9-12**
Unit 10: Probability and Data Analysis	**Time Frame: 3 Weeks**
UNIT OVERVIEW	

In this unit, we will learn about:

- Measures of Central Tendency (Mean, Median, Mode) and Dispersion (Range), Quartiles and Interquartile Range (IQR)
- Predictions from Data
- Representations of Data (Box-and-Whisker Plot, Stem-and-Leaf Plot)
- Predictions from Scatter Plots
- Probability of Compound Events
- Odds
- Fundamental Counting Principle, Permutations and Combinations

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)	CC.2.1.HS.F.3 CC.2.4.HS.B.3 CC.2.4.HS.B.7
COMPETENCIES	**LEARNING TARGETS**
Measurement, Data, and Statistics I can collect, represent, analyze, and interpret data.	• I can calculate the mean, median, mode, upper quartile, lower quartile, interquartile range, and range for a set of data. (K1MAB10K2) • I can analyze and make predictions using data displays. (K1MAB10K3) • I can analyze and make predictions using scatter plots and the lines of best fit. (K1MAB10K1)
Probability I can use counting strategies and calculate the probability of events.	• I can calculate probability and odds for simple and compound events. (K1MAB11K1) • I can use the fundamental counting principle, permutations, and combinations to find the number of ways an event can occur. (K1MAB11K2)