

<b>SUBJECT: Algebra 1</b>		<b>GRADE: 9-12</b>		
<b>Unit 1: Properties of Real Numbers</b>	<b>Time Frame: 3 Weeks</b>			
<b>UNIT OVERVIEW</b>				
<p>In this unit, we will learn about:</p> <ul style="list-style-type: none"> <li>• Adding and Subtracting Fractions</li> <li>• Multiplying and Dividing Fractions</li> <li>• Adding and Subtracting Real Numbers</li> <li>• Combining Like Terms</li> <li>• Multiplying and Dividing Real Numbers</li> <li>• Distributive Property</li> <li>• Simplifying Square Roots</li> <li>• Scientific Notation</li> </ul>				
<b>LRG SKILLS AND DISPOSITIONS</b>		<b>PA STANDARDS</b>		
<ul style="list-style-type: none"> <li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li> </ul>		CC.2.1.HS.F.2		
<b>COMPETENCIES</b>		<b>LEARNING TARGETS</b>		
<b>Numbers and Operations- Fraction</b> I can find common factors and multiples to represent, compare, and calculate quantities using fractions.		<ul style="list-style-type: none"> <li>• I can compare and order numbers in different forms. (K1MAB2K1)</li> <li>• I can perform operations with fractions. (K1MAB2K2)</li> <li>• I can simplify square roots. (K1MAB2K3)</li> </ul>		
<b>Operations and Expressions</b> I can generate equivalent expressions using operations and mathematical properties.		<ul style="list-style-type: none"> <li>• I can simplify absolute value expressions. (K1MAB4K1)</li> <li>• I can identify algebraic properties. (K1MAB4K2)</li> <li>• I can perform operations with real numbers. (K1MAB4K3)</li> </ul>		

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<b>Unit 2: Expressions, Equations, Functions</b>	<b>Time Frame: 3 Weeks</b>
<b>UNIT OVERVIEW</b>	
<p>In this unit, we will learn about:</p> <ul style="list-style-type: none"> <li>• Order of Operations, Expressions &amp; Mathematical Statements</li> <li>• Patterns and Relationships</li> <li>• Functions</li> </ul>	
<b>LRG SKILLS AND DISPOSITIONS</b>	<b>PA STANDARDS</b>
<ul style="list-style-type: none"> <li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li> </ul>	CC.2.1.HS.F.3 CC.2.2.HS.D.2 CC.2.2.HS.C.2 CC.2.2.HS.C.3
<b>COMPETENCIES</b>	<b>LEARNING TARGETS</b>
<b>Operations and Expressions</b> I can generate equivalent expressions using operations and mathematical properties.	<ul style="list-style-type: none"> <li>• I can simplify and evaluate expressions using the order of operations. (K1MAB4K4)</li> <li>• I can write variable expressions. (K1MAB4K5)</li> </ul>
<b>Sequences and Series</b> I can identify, describe, and represent various types of sequences and series.	<ul style="list-style-type: none"> <li>• I can identify and/or use a rule for the nth term of an arithmetic sequence. (K1MAB14K1)</li> </ul>
<b>Patterns, Functions, and Multiple Representations</b> I can identify, create, and evaluate functions using multiple representations.	<ul style="list-style-type: none"> <li>• I can determine whether a relation is a function. (K1MAB6K1)</li> <li>• I can identify the domain and range of a relation. (K1MAB6K2)</li> <li>• I can graph a function given a rule and a domain. (K1MAB6K2)</li> </ul>

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<b>Unit 3: Solving Linear Equations</b>	<b>Time Frame: 5 Weeks</b>
<b>UNIT OVERVIEW</b>	
<p>In this unit, we will learn about:</p> <ul style="list-style-type: none"> <li>• Solving One-Step Linear Equations with Addition, Subtractions, Division and Multiplication</li> <li>• Solving Two-Step Equations</li> <li>• Solving Equations with Variables on Both Sides</li> <li>• Solving Proportions using Cross Products</li> <li>• Rewriting Linear Equations as Functions</li> <li>• Word Problems Proportions</li> <li>• Percent Equations</li> <li>• Percent of Change and Unit Rate</li> <li>• Solving Problems by Writing Equations</li> </ul>	
<b>LRG SKILLS AND DISPOSITIONS</b>	<b>PA STANDARDS</b>
<ul style="list-style-type: none"> <li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li> </ul>	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
<b>COMPETENCIES</b>	<b>LEARNING TARGETS</b>
<b>Equations and Inequalities</b> I can create and solve equations and inequalities that represent mathematical situations.	<ul style="list-style-type: none"> <li>• I can solve algebraic equations. (K1MAB5K1)</li> <li>• I can rewrite equations in function form (slope-intercept form). (K1MAB5K2)</li> <li>• I can solve for a specific variable when an equation has multiple variables. (K1MAB5K3)</li> <li>• I can solve problems using percentages. (K1MAB5K4)</li> <li>• I can calculate unit rates and compare unit rates to be a smarter consumer. (K1MAB5K5)</li> </ul>

	<ul style="list-style-type: none"> <li>• I can represent a real-life situation using an algebraic equation. (K1MAB5K6)</li> </ul>
<b>Ratios and Proportional Relationships</b> I can find common factors and multiples to represent, compare, and calculate quantities using fractions.	<ul style="list-style-type: none"> <li>• I can solve proportions. (K1MAB3K1)</li> </ul>

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<b>Unit 4: Graphing Linear Equations</b>	<b>Time Frame: 3 Weeks</b>
<b>UNIT OVERVIEW</b>	

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 ( $y=mx+b$ )

<b>LRG SKILLS AND DISPOSITIONS</b>	<b>PA STANDARDS</b>
<ul style="list-style-type: none"> <li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li> </ul>	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
<b>COMPETENCIES</b>	<b>LEARNING TARGETS</b>
<b>Graphing</b>	<ul style="list-style-type: none"> <li>• I can graph linear equations using tables. (K1MAB7K1)</li> </ul>

<p>I can create and interpret graphs as visual representations of the relationship between quantities.</p>	<ul style="list-style-type: none"> <li>• I can find x-intercepts and y-intercepts and use them to graph linear equations. (K1MAB7K2)</li> <li>• I can graph linear equations using slope-intercept form. (K1MAB7K3)</li> </ul>
<p><b>Patterns, Functions, and Multiple Representations</b> I can identify, create, and evaluate functions using multiple representations.</p>	<ul style="list-style-type: none"> <li>• I can find and compare slopes. (K1MAB6K4)</li> <li>• I can use function notation. (K1MAB6K5)</li> </ul>

SUBJECT: Algebra 1	GRADE: 9-12
Unit 5: Writing Linear Equations	Time Frame: 3 Weeks
<b>UNIT OVERVIEW</b>	

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
<ul style="list-style-type: none"> <li>• Honesty, Integrity and Responsibility 9-12: Student conference regarding assignments (D3C)</li> <li>• Resilience and Grit 9-12: Student conference regarding</li> </ul>	CC.2.1.HS.F.3 CC.2.2.HS.D.7 CC.2.2.HS.D.8 CC.2.2.HS.D.10

<ul style="list-style-type: none"> <li>taking advantage of opportunities for improvement (D4C)</li> <li>Collaboration and Teamwork 9-12: Student conference regarding collaboration (S1C)</li> <li>Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li> </ul>	
<b>COMPETENCIES</b>	<b>LEARNING TARGETS</b>
<b>Measurement, Data, and Statistics</b> I can collect, represent, analyze, and interpret data.	<ul style="list-style-type: none"> <li>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)</li> </ul>
<b>Equations and Inequalities</b> I can create and solve equations and inequalities that represent mathematical situations.	<ul style="list-style-type: none"> <li>I can write equations of lines when given a slope and y-intercept, a graph, or a slope and a point. (K1MAB5K7)</li> <li>I can write equations of lines when given two points or both intercepts. (K1MAB5K8)</li> <li>I can write equations of parallel and perpendicular lines. (K1MAB5K9)</li> <li>I can write equations of horizontal lines and vertical lines. (K1MAB5K10)</li> <li>I can write equations of lines in standard form. (K1MAB5K11)</li> <li>I can write an equation in two-variables to model a real-life situation. (K1MAB5K12)</li> </ul>

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

<ul style="list-style-type: none"> <li>• Writing, Solving, and Graphing Inequalities</li> <li>• Solving and Graphing Multi-Step Inequalities</li> <li>• Compound Inequalities</li> <li>• Solving Absolute Value Equations</li> <li>• Solving Absolute Value Inequalities</li> <li>• Inequalities with Two Variables</li> </ul>	
<b>LRG SKILLS AND DISPOSITIONS</b>	<b>PA STANDARDS</b>
<ul style="list-style-type: none"> <li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li> </ul>	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
<b>COMPETENCIES</b>	<b>LEARNING TARGETS</b>
<b>Equations and Inequalities</b> I can create and solve equations and inequalities that represent mathematical situations.	<ul style="list-style-type: none"> <li>• I can write and solve one-variable inequalities. (K1MAB5K13)</li> <li>• I can write and solve compound inequalities. (K1MAB5K14)</li> <li>• I can solve absolute value equations. (K1MAB5K15)</li> <li>• I can solve absolute value inequalities. (K1MAB5K16)</li> </ul>
<b>Graphing</b> I can create and interpret graphs as visual representations of the relationship between quantities.	<ul style="list-style-type: none"> <li>• I can graph inequalities on a number line. (K1MAB7K4)</li> <li>• I can graph inequalities on a coordinate plane. (K1MAB7K5)</li> </ul>

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

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
<ul style="list-style-type: none"><li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li></ul>	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
<b>Equations and Inequalities</b> I can create and solve equations and inequalities that represent mathematical situations.	<ul style="list-style-type: none"><li>• I can solve systems of equations using substitution and/or elimination. (K1MAB5K17)</li><li>• I can interpret real-life solutions using systems of equations. (K1MAB5K18)</li><li>• I can interpret real-life solutions using systems of inequalities. (K1MAB5K19)</li></ul>
<b>Graphing</b> I can create and interpret graphs as visual representations of the relationship between quantities.	<ul style="list-style-type: none"><li>• I can solve systems of equations by graphing. (K1MAB7K6)</li><li>• I can graph systems of inequalities. (K1MAB7K7)</li></ul>

<b>SUBJECT: Algebra 1</b>	<b>GRADE: 9-12</b>
<b>Unit 8: Properties of Exponents</b>	<b>Time Frame: 3 Weeks</b>
<b>UNIT OVERVIEW</b>	

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
<ul style="list-style-type: none"><li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li></ul>	
COMPETENCIES	LEARNING TARGETS
<p><b>Operations and Expressions</b> I can generate equivalent expressions using operations and mathematical properties.</p>	<ul style="list-style-type: none"><li>• I can simplify expressions using the multiplication properties of exponents. (K1MAB4K6)</li><li>• I can represent numbers in scientific notation and standard form. (K1MAB4K7)</li><li>• I can simplify expressions using the division properties of exponents. (K1MAB4K8)</li><li>• I can simplify expressions using the zero and negative properties of exponents. (K1MAB4K9)</li></ul>

SUBJECT: Algebra 1	GRADE: 9-12
Unit 9: Polynomials and Factoring	Time Frame: 4 Weeks
UNIT OVERVIEW	
In this unit, we will learn about: <ul style="list-style-type: none"><li>• Adding and Subtracting Polynomials</li><li>• Greatest Common Factor (GCF) and Least Common Multiple (LCM)</li></ul>	

<ul style="list-style-type: none"> <li>• Multiplying Polynomials</li> <li>• Factoring Polynomials</li> <li>• Solve by Factoring</li> <li>• Simplifying Rational Expressions (by Factoring)</li> </ul>	
LRG SKILLS AND DISPOSITIONS	PA STANDARDS
<ul style="list-style-type: none"> <li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li> </ul>	CC.2.2.HS.D.2 CC.2.2.HS.D.3 CC.2.2.HS.D.6
COMPETENCIES	LEARNING TARGETS
<p><b>Operations and Expressions</b>  I can generate equivalent expressions using operations and mathematical properties.</p>	<ul style="list-style-type: none"> <li>• I can add and subtract polynomials. (K1MAB4K10)</li> <li>• I can find the least common multiple and greatest common factor of polynomials. (K1MAB4K11)</li> <li>• I can factor out the greatest common factor of a polynomial. (K1MAB4K12)</li> <li>• I can multiply polynomials. (K1MAB4K13)</li> <li>• I can factor polynomials. (K1MAB4K14)</li> <li>• I can simplify rational expressions. (K1MAB4K15)</li> </ul>
<p><b>Equations and Inequalities</b>  I can create and solve equations and inequalities that represent mathematical situations.</p>	<ul style="list-style-type: none"> <li>• I can solve quadratic equations by factoring. (K1MAB5N5)</li> </ul>

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

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
<ul style="list-style-type: none"><li>• Collaboration and Teamwork 9-12: Group Critical Thinking Quizzes (S1C)</li></ul>	CC.2.1.HS.F.3 CC.2.4.HS.B.3 CC.2.4.HS.B.7
COMPETENCIES	LEARNING TARGETS
<b>Measurement, Data, and Statistics</b> I can collect, represent, analyze, and interpret data.	<ul style="list-style-type: none"><li>• I can calculate the mean, median, mode, upper quartile, lower quartile, interquartile range, and range for a set of data. (K1MAB10K2)</li><li>• I can analyze and make predictions using data displays. (K1MAB10K3)</li><li>• I can analyze and make predictions using scatter plots and the lines of best fit. (K1MAB10K1)</li></ul>
<b>Probability</b> I can use counting strategies and calculate the probability of events.	<ul style="list-style-type: none"><li>• I can calculate probability and odds for simple and compound events. (K1MAB11K1)</li><li>• I can use the fundamental counting principle, permutations, and combinations to find the number of ways an event can occur. (K1MAB11K2)</li></ul>