EVERGREEN COMMUNITY CHARTER SCHOOL CURRICULUM

MATH

Course: Algebra I

Grade: 8, 9

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.	Model with mathematics.
Use appropriate tools strategically.	Attend to precision.
Look for and express regularity in repeated reasoning.	Look for and make use of structure.

PA Core Standards	Materials	Methods/Assessment
2.1 Numbers and Operations • CC.2.1.HS.F.1: Apply and extend the properties of exponents to solve problems with rational exponents. • CC.2.1.HS.F.2: Apply properties of rational and irrational numbers to solve real-world or mathematical problems. • CC.2.1.HS.F.3: Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays. • CC.2.1.HS.F.4: Use units as a way to understand problems and to guide the solution of multi-step problems. • CC.2.1.HS.F.5: Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. 2.2 Algebraic Concepts • CC.2.2.HS.C.1: Use the concept and notation of functions to interpret and apply them in terms of their context. • CC.2.2.HS.C.2: Graph and analyze functions and use their properties to make connections between the different representations. • CC.2.2.HS.C.3: Write functions or sequences that model relationships between two quantities. • CC.2.2.HS.C.4: Interpret the effects transformations have on functions and find the inverses of functions. • CC.2.2.HS.C.5: Construct and compare linear, quadratic, and exponential models to solve problems. • CC.2.2.HS.C.6: Interpret functions in terms of the situations they model. • CC.2.2.HS.D.1: Interpret the	**Materials:** Algebra I, Glencoe McGraw-Hill **Resources:** • PDE SAS portal: http://www.pdesas.org • Teacher generated/differentiated instruction resources and activities • Algebra I released state sample questions • http://www.khanacademy.org/ • Online textbook access • Calculators **Differentiation:** **Enrichment** • Small group instruction • Teacher generated/differentiated instruction • Enrichment activities **Remediation** • Small group instruction • Teacher generated/differentiated instruction • Adapted Assignments • Extended Time • Alternative Assignments • Re-teaching • Peer tutoring • Accommodations • Math Support	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Observation • Participation • Notes • Homework • Question & Answer • Quizzes • Tests • Constructed Response Tasks • CDTs • PSSAs • Keystone Test

Course: Algebra I		
Grade: 8, 9 Make sense of problems and persevere in solving them. Construct viable arguments and critique the reasoning of others. Use appropriate tools strategically. Look for and express regularity in repeated reasoning.	Reason abstractly and quantitatively. Model with mathematics. Attend to precision. Look for and make use of structure.	

structure of expressions to represent a quantity in terms of its context. • CC.2.2.HS.D.2: Write expressions in equivalent forms to solve problems. • CC.2.2.HS.D.3: Extend the knowledge of arithmetic operations and apply to polynomials. • CC.2.2.HS.D.5: Use polynomial identities to solve problems. • CC.2.2.HS.D.6: Extend the knowledge of rational functions to rewrite in equivalent forms. • CC.2.2.HS.D.7: Create and graph equations or inequalities to describe numbers or relationships. • CC.2.2.HS.D.8: Apply inverse operations to solve equations or formulas for a given variable. • CC.2.2.HS.D.9: Use reasoning to solve equations and justify the solution method. • CC.2.2.HS.D.10: Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. 2.4 Measurement, Data, and Probability • CC.2.4.HS.B.1: Summarize, represent, and interpret data on a single count or measurement variable. • CC.2.4.HS.B.2: Summarize, represent, and interpret data on two categorical and quantitative variables. • CC.2.4.HS.B.3: Analyze linear models to make interpretations based on the data. • CC.2.4.HS.B.5: Make inferences and justify conclusions based on sample surveys, experiments, and observational studies. • CC.2.4.HS.B.7: Apply the rules of probability to compute		

Course: Algebra I

Grade: 8, 9

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.	Model with mathematics.
Use appropriate tools strategically.	Attend to precision.
Look for and express regularity in repeated reasoning.	Look for and make use of structure.

probabilities of compound events in a uniform probability model.

EVERGREEN COMMUNITY CHARTER SCHOOL CURRICULUM

MATH

Course: Algebra I

Grade: 8, 9

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.	Model with mathematics.
Use appropriate tools strategically.	Attend to precision.
Look for and express regularity in repeated reasoning.	Look for and make use of structure.

Keystone Eligible Content	Materials/Unit	Methods/Assessment
- A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems. Note: Exponents should be integers from -10 to 10. - A1.1.1.4.1 Use estimation to solve problems. - A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations). - A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only. - 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) - A1.2.1.2.1 Create, interpret, and/or use the equation, graph, or table of a linear function. - A1.2.1.2.2 Translate from one representation of a linear function to another (i.e., graph, table, equation). Vertical Alignment (Introductory Topics) - A2.2.1.1.2 Identify and/or extend a pattern as either an arithmetic or geometric sequence (e.g., given a geometric sequence, find the 20th term). Algebra 1 with understanding of functions. - A1.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically. - A1.2.1.1.2 Determine whether a relation is a function, given a set of points or graph. - A1.2.1.1.3 Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table). Vertical Alignment (Introductory Topics) - A2.2.1.1.1 Analyze a set of data for the	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 1 – Expressions, Equations, and Functions**	**Methods:** - Lecture - Demonstration - Note-taking - Discussion - Practice **Assessment:** - Observation - Participation - Notes - Homework - Question & Answer - Quizzes - Tests - Constructed Response Tasks - CDTs - PSSAs - Keystone Test

Course: Algebra I		

Grade: 8, 9   Make sense of problems and persevere in solving them.
      Construct viable arguments and critique the reasoning of others.
      Use appropriate tools strategically.
      Look for and express regularity in repeated reasoning.
	Reason abstractly and quantitatively.
	 Model with mathematics.
	 Attend to precision.
	 Look for and make use of structure.	

existence of a pattern and represent the pattern with a rule algebraically and/or graphically.		

MATH

Course: Algebra I

Grade: 8, 9   Make sense of problems and persevere in solving them.   Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.   Model with mathematics.

Use appropriate tools strategically.   Attend to precision.

Look for and express regularity in repeated reasoning.   Look for and make use of structure.

Keystone Eligible Content	Materials/Unit	Methods/Assessment
• A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed. • A1.1.1.1.2 Simplify square roots. • 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. • A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only. Vertical Alignment (Introductory Topics) • A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable (e.g., solve d = rt for r). • G.2.1.1.2 Use trigonometric ratios to write and/or solve problems involving right triangles. • G.2.2.2.5 Find the area of a sector of a circle.	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 2 – Linear Equations**	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Observation • Participation • Notes • Homework • Question & Answer • Quizzes • Tests • Constructed Response Tasks • CDTs • PSSAs • Keystone Test

EVERGREEN COMMUNITY CHARTER SCHOOL CURRICULUM

MATH

Course: Algebra I

Grade: 8, 9

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.	Model with mathematics.
Use appropriate tools strategically.	Attend to precision.
Look for and express regularity in repeated reasoning.	Look for and make use of structure.

Keystone Eligible Content	Materials/Unit	Methods/Assessment
- A1.2.1.2.1 Create, interpret, and/or use the equation, graph, or table of a linear function - A1.2.1.2.2 Translate from one representation of a linear function to another (i.e., graph, table, and equation). - A1.2.2.1.1 Identify, describe, and/or use constant rates of change. - A1.2.2.1.2 Apply the concept of linear rate of change (slope) to solve problems. - 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. Note: Linear equations may be in point slope, standard, and/or slope-intercept form. - A1.2.2.1.4 Determine the slope and/or y-intercept represented by a linear equation or graph. Vertical Alignment (Introductory Topics) - G.2.1.1.2 Use trigonometric ratios to write and/or solve problems involving right triangles. - G.2.1.2.1 Calculate the distance and/or midpoint between two points on a number line or on a coordinate plane. - G.2.1.2.3 Use slope, distance and/or midpoint between two points on a coordinate plane to establish properties of a 2-dimensional shape.	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 3 – Linear Functions**	**Methods:** - Lecture - Demonstration - Note-taking - Discussion - Practice **Assessment:** - Observation - Participation - Notes - Homework - Question & Answer - Quizzes - Tests - Constructed Response Tasks - CDTs - PSSAs - Keystone Test

Course: Algebra I

Grade: 8, 9

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.	Model with mathematics.
Use appropriate tools strategically.	Attend to precision.
Look for and express regularity in repeated reasoning.	Look for and make use of structure.

Keystone Eligible Content	**Materials/Unit**	**Methods/Assessment**
• 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. Note: Linear equations may be in point slope, standard, and/or slope-intercept form. • A1.2.2.1.4 Determine the slope and/or y-intercept represented by a linear equation or graph. Vertical Alignment (Introductory Topics) • G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). • G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles. • A1.2.2.2.1 Draw, identify, find, and/or write an equation for a line of best fit for a scatter plot. • A1.2.2.2.1 Draw, identify, find, and/or write an equation for a line of best fit for a scatterplot.	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 4 – Equations of Linear Functions**	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Observation • Participation • Notes • Homework • Question & Answer • Quizzes • Tests • Constructed Response Tasks • CDTs • PSSAs • Keystone Test

Course: Algebra I

Grade: 8, 9   Make sense of problems and persevere in solving them.   Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.   Model with mathematics.
Use appropriate tools strategically.   Attend to precision.
Look for and express regularity in repeated reasoning.   Look for and make use of structure.

Keystone Eligible Content	Materials/Unit	Methods/Assessment
- 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). - A1.1.3.1.2 Identify or graph the solution set to a linear inequality on a number line. - A1.1.3.1.3 Interpret solutions to problems in the context of the problem situation. Note: Limit to linear inequalities. - A1.1.2.1.1 Write, solve and/or apply a linear equation (including problem situations). - A1.1.3.2.1 Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities.	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 5 – Linear Inequalities**	**Methods:** - Lecture - Demonstration - Note-taking - Discussion - Practice **Assessment:** - Observation - Participation - Notes - Homework - Question & Answer - Quizzes - Tests - Constructed Response Tasks - CDTs - PSSAs - Keystone Test

EVERGREEN COMMUNITY CHARTER SCHOOL CURRICULUM

MATH

Course: Algebra I

Grade: 8, 9   Make sense of problems and persevere in solving them.   Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.   Model with mathematics.
Use appropriate tools strategically.   Attend to precision.
Look for and express regularity in repeated reasoning.   Look for and make use of structure.

Keystone Eligible Content	Materials/Unit	Methods/Assessment
- A1.1.2.2.1 Write and/or solve a system of linear equations (including problem situations) using graphing, substitution, and/or elimination. Note: Limit systems to two linear equations. - A1.1.2.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear equations. - A1.1.3.2.1 Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities. - A1.1.3.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear inequalities.	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 6 – Systems of Linear Equations and Inequalities**	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Observation • Participation • Notes • Homework • Question & Answer • Quizzes • Tests • Constructed Response Tasks • CDTs • PSSAs • Keystone Test

EVERGREEN COMMUNITY CHARTER SCHOOL CURRICULUM

MATH

Course: Algebra I

Grade: 8, 9

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.	Model with mathematics.
Use appropriate tools strategically.	Attend to precision.
Look for and express regularity in repeated reasoning.	Look for and make use of structure.

Keystone Eligible Content	Materials/Unit	Methods/Assessment
• A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems. Note: Exponents should be integers from -10 to 10. • A2.1.3.1.3 Write and/or solve a simple exponential or logarithmic equation (including common and natural logarithms). • A2.1.3.1.4 Write, solve, and/or apply linear or exponential growth or decay (including problem situations).	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 7 – Exponents and Exponential Functions**	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Observation • Participation • Notes • Homework • Question & Answer • Quizzes • Tests • Constructed Response Tasks • CDTs • PSSAs • Keystone Test

EVERGREEN COMMUNITY CHARTER SCHOOL CURRICULUM

MATH

Course: Algebra I

Grade: 8, 9   Make sense of problems and persevere in solving them.   Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.   Model with mathematics.

Use appropriate tools strategically.   Attend to precision.

Look for and express regularity in repeated reasoning.   Look for and make use of structure.

Keystone Eligible Content	Materials/Unit	Methods/Assessment
- A2.2.2.1.1 Create, interpret, and/or use the equation, graph, or table of a polynomial function (including quadratics). - A2.2.2.1.3 Determine, use, and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential, or logarithmic function. - A2.2.2.1.4 Translate a polynomial, exponential, or logarithmic function from one representation of a function to another (graph, table, and equation). - A2.1.3.1.1 Write and/or solve quadratic equations (including factoring and using the Quadratic Formula). - A2.1.3.1.2 Solve equations involving rational and/or radical expressions (e.g., $10/(x+3) + 12/(x2) = 1$ or $\sqrt{(x^2 + 21x)} = 14$). - G.2.1.1.1 Use the Pythagorean Theorem to write and/or solve problems involving right triangles. - G.2.2.3.1 Describe how a change in the linear dimension of a figure affects its perimeter, circumference, and area (e.g., How does changing the length of the radius of a circle affect the circumference of the circle?) - G.2.3.2.1 Describe how a change in the linear dimension of a figure affects its surface area or volume (e.g., How does changing the length of the edge of a cube affect the volume of the cube?) - G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of a polygon. Algebra 1 with understanding of functions.	**Materials:** Algebra I, Glencoe McGraw-Hill Pdesas.org **Unit 8 – Quadratic Expressions and Equations**	**Methods:** - Lecture - Demonstration - Note-taking - Discussion - Practice **Assessment:** - Observation - Participation - Notes - Homework - Question & Answer - Quizzes - Tests - Constructed Response Tasks - CDTs - PSSAs - Keystone Test

May 3, 2024