Moon Area School District Curriculum Map

Course: Algebra 1
Grade Level: 8
Content Area: Mathematics
Frequency: Full-Year Course

Big Ideas

1. Equations
2. Inequalities
3. Data Analysis
4. Functions
5. System of Equations
6. System of Inequalities
7. Exponents
8. Scientific Notation
9. Quadratic Equations and Functions

Essential Questions

10. What is meant by equality when solving equations and how does absolute value affect solving linear equations?
11. How do the words "and"/ "or" affect the outcome of an inequality?
12. How does the choice of data display influence the prediction or probability?
13. What does slope-intercept form of an equation tell us? How do we use real-world data to write the equation of a line?
14. How might one determine the most efficient method for solving a system of equations?
15. Distinguish between the solution set of a system of equations verses system of inequalities.
16. How is an expression simplified with both negative and positive exponents?
17. How is scientific notation utilized in real world situations?
18. What are the essential rules when performing basic operations and simplification of square roots?

Primary Resource(s) & Technology:

Algebra 1 by McDougal Littel@2004, IXL online software,
Microsoft Teams, Promethean Boards, Student Laptops

Pennsylvania and/or focus standards referenced at:

www.pdesas.org
www.education.pa.gov

Big Ideas/ EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
1, 9	CC. Eligible Content A1.1.2.1.1 A1.1.2.1.2 A1.1.2.2.2 A1.1.1.5.3 M08.B-E.3.1.1 M08.B-E.3.1.2	• Solve linear equations using addition, subtraction, multiplication, and division of real numbers. • To use two or more transformations to solve an equation. • Collect variables on one side of an equation. • Solve absolute value equations. • Solve a formula for one of its variables and rewrite an equation in function form	5 weeks
2, 10	Eligible Content A1.1.3.1.1 A1.1.3.1.2 A1.1.3.1.3	• Solve and graph one-step, one variable inequalities. • Solve and graph multi-step inequalities. • Write, solve, and graph compound inequalities • Solve and graph absolute value inequalities	3 weeks
3, 12	Eligible Content A1.2.2.2.1 A1.2.3.2.2	• Analysis data, make predications, and/or answer questions based on data displayed (box-and-whisker plots, stem-and-leaf plots, scatter plots and measure of central tendency) • Draw, identify and find the line of best fit for a scatter plot.	2 weeks
4,13	Eligible Content A1.1.2.1.1 A1.1.2.1.3 A1.2.1.1.1 A1.2.1.1.2 A1.2.1.1.3 A1.2.1.2.1 A1.2.2.1.1 A1.2.2.1.2 A1.2.2.1.4	• Identify whether relations are functions, identify domain and range of a relation, identify independent and dependent variables and construct input-output tables for a function • Use function notation to evaluate functions • Graph a linear equation using a table or list of values • Find the intercept of the graph of a linear equation • Calculate the solve of a line given two points • Graph a linear function in slope-intercept form	5 weeks
5, 13	Eligible Content A1.1.2.1.1 A1.2.1.2.1 A1.2.1.2.2	• Write equations of lines in slope intercept form, point-slope form, and standard form. • Use slope-intercept from to write an equation of a line	3 weeks

	A1.2.2.1.1 A1.2.2.1.2 A1.2.2.1.3 A1.2.2.1.4 A1.2.2.2.1 A1.2.3.2.2	• Use slope and any point on a line to write an equation of the line. • Write an equation of a line given two points • Write a linear equation that approximates a set of data points.	
6, 14, 15	Eligible Content A1.1.2.2.1 A1.1.2.2.2 A1.1.3.2.1 A1.1.3.2.2	• Solve a system of linear equations by graphing, substitution, and linear combination/elimination • Identify linear systems as having one solution, no solution or infinitely many solutions • Graph a linear inequality in two variables. • Solve a system of linear inequalities by graphing.	5 weeks
7, 16, 17	Eligible Content A1.1.1.3.1	• Use properties of exponents to multiply exponential expressions • Evaluate powers that have zero and negative exponents • Use division properties of exponents to evaluate powers and simplify expressions • Use scientific notation to represent numbers- include SN generated by technology)	March
PSSA Review	M08.A-N.1.1.1 M08.A-N.1.1.2 M08.A-N.1.1.3 M08.A-N.1.1.4 M08.A-N.1.1.5 M08.B-E.1.1.2 M08.B-E.2.1.2 M08.C-G.1.1.1 M08.C-G.1.1.2 M08.C-G.1.1.3 M08.C-G.1.1.4 M08.C-G.2.1.1 M08.C-G.2.1.2 M08.C-G.2.1.3 M08.C-G.3.1.1 M08.D-S.1.2.1	PSSA Topics to be reviewed: • Transformations- reflections, rotations, translations, and dilations • Square roots & cube roots • Pythagorean Theorem and its converse • Rational and irrational numbers- terminating/repeating decimals, estimation of irrational numbers, ordering irrational numbers, graphing irrational number of number line) • Two- way tables • Apply formulas for the volume of cones, cylinders, and spheres • Use similar right triangles and slope to find the distance between two distinct points of a non-vertical line in the coordinate plane\	March April
9, 10	Eligible Content A1.1.1.2	• Evaluate and approximate square roots • Use properties of radicals to simplify radicals	April

		• Sketch the graph of a quadratic function • Solve a quadratic function graphically • Use the quadratic formulas to solve the quadratic function	
9, 18	Eligible Content A1.1.2.1 A1.1.5.1 A1.1.5.2 A1.1.5.3	• Add, subtract, and multiply polynomials • Factor polynomials • Simplify radical expressions • Algebra 1 Keystone Exam- end of May	May