

**WESTMORELAND COUNTY PUBLIC SCHOOLS**  
**2015 – 2016 Integrated Instructional Pacing Guide and Checklist**  
**Algebra I Montross Middle School**

<b>FIRST QUARTER</b>						
<b>Units</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>SOL(s)</b>	1 a, b, c, d 4 b	3 a, b, c	10 a	9 a, b, c, d, e, f	4 a, b, e, f, l	5 a, b, c
<b>Textbook Correlation</b>	1-1 to 1-8	10-3, 11-1 Supplement	p 740	Supplement	2-1 to 2-6	3-1 to 3-4
<b>ESS</b>	Translate and Evaluate Evaluate & Simplify Expressions	Simplifying Square Roots Simplify Radical	Box-and-Whisker Plots	Exploring Statistics z-Scores Analyzing & Interpreting Statistics Calculating Measures of Dispersion	Solve for the Unknown A Mystery to Solve Cover-Up Problems Algebra Tiles and Equation Solving Solving Linear Equations	Inequalities Greetings
<b>Vocabulary</b>	Algebraic expressions Symbolic representations Minimum Properties – Associative Commutative Inverse Reflexive Substitution Symmetric Transitive Replacement set Variable	Square root Perfect square Squaring Simplest radical form Radicand Cubing Cube root	Median Range Mean Minimum Maximum Lower quartile Upper quartile Interquartile range	Mean Dispersion Mean absolute deviation Standard deviation Variance z-score Summation notation Median Mode Range Measure of central tendency	Literal equations Properties Associative Commutative Inverse Reflexive Substitution Symmetric Transitive Distributive Identity Closure Zero product Property of Equality Addition Subtraction Multiplication Division Equation, Linear equation, solution, Intersection	Open point Closed point Dashed line Boundary Solid line Function rule At least Minimum Maximum

Days	Date Introduced	Dates Taught	Date Assessed	Dates Remediation	SOL	Topic
4					1.a	Translate verbal quantitative situations into algebraic expressions and vice versa.
					1.b	Model real-world situations with algebraic expressions in a variety of representations (concrete, pictorial, symbolic, verbal).
					1.c	Evaluate algebraic expressions for a given replacement set to include rational numbers.
					1.d	Evaluate expressions that contain absolute value, square roots, and cube roots.
					4.b	Simplify expressions using the field properties of the real numbers and properties of equality to justify simplification and solution.
						Use properties to simplify expressions: Commutative, Associative, Distributive, Identity, Inverse, Closure, Reflexive, Symmetric, Transitive, Substitution
2					3.b	Express the cube root of a whole number in simplest form.
					3.a	Express square roots of a whole number in simplest form.
					3.c	Express the principal square root of a monomial algebraic expression in simplest form where variables are assumed to have positive values.
1					10.a	Compare, contrast, and analyze data, including data from real-world situations displayed in box-and-whisker plots.

Days	Date Introduced	Dates Taught	Date Assessed	Dates Remediation	SOL	Topic
9					9.a	Analyze descriptive statistics to determine the implications for the real-world situations from which the data derive.
					9.b	Given data, including data in a real-world context, calculate and interpret the mean absolute deviation of a data set.
					9.c	Given data, including data in a real-world context, calculate variance and standard deviation of a data set and interpret the standard deviation.
					9.d	Given data, including data in a real-world context, calculate and interpret z-scores for a data set.
					9.e	Explain ways in which standard deviation addresses dispersion by examining the formula for standard deviation.
					9.f	Compare and contrast mean absolute deviation and standard deviation in a real-world context.
10					4.b	Solve equations, using the field properties of the real numbers and properties of equality to justify simplification and solution.
					4.e	Solve multistep linear equations in one variable.
					4.l	Determine if a linear equation in one variable has one, an infinite number, or no solutions.
					4.f	Confirm algebraic solutions to linear equations, using a graphing calculator.
					4.a	Solve a literal equation (formula) for a specified variable.
5					5.a	Solve multistep linear inequalities in one variable.
					5.b	Justify steps used in solving inequalities, using axioms of inequality and properties of order that are valid for the set of real numbers.
					5.c	Solve real-world problems involving inequalities.

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<b>SECOND QUARTER</b>						
<b>Units</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>SOL(s)</b>	2 a, 3 c	2 b, c, d	2 b, c, e	2 b, c, f	2 g, h, i	7 a, b, c, d
<b>Textbook Correlation</b>	8-1, 8-3 to 8-5	9-1	9-2 to 9-4	12-5	9-5 to 9-8	5-2 to 5-4
<b>ESS</b>	Exponents	Adding and Subtracting Polynomials Using Algebra Tiles	Multiplying Polynomials Using Algebra Tiles	Dividing Polynomials Using Algebra Tiles	Factoring Factoring for Zeros	Square Patios Functions 2 Functions 1 Factoring
<b>Vocabulary</b>	Exponent Prodct Quotient	Monomial Binomial Trinomial Polynomial Term Degree Base Exponent Coefficient	Monomial Binomial Trinomial Polynomial Term Degree Base Exponent Coefficient	Monomial Binomial Trinomial Polynomial Term Degree Base Exponent Coefficient Divisor Dividend	Greatest common factor Dimension Prime Factor Factoring Rectangular area Perimeter Denominator Horizontal axis Vertical axis Quadrant x-intercept Trinomial Binomial Zeros of a function	Independent variable Dependent variable Domain Range Function Relation y-intercept x-intercept Zero Input Output Function notation

Days	Date Introduced	Dates Taught	Date Assessed	Dates Remediation	SOL	Topic
3					2.a	Simplify monomial expressions and ratios of monomial expressions in which the exponents are integers, using the laws of exponents.
2					2.d	Find sums and differences of polynomials.
					2.c	Relate concrete and pictorial manipulations that model polynomial operations to their corresponding symbolic representations.
					2.b	Model sums and differences of polynomials with concrete objects and their related pictorial representations.
6					2.e	Find products of polynomials. The factors will have no more than five total terms (i.e. $(4x+2)(3x+5)$ represents four terms and $(x+1)(2x^2+x+3)$ represents five terms).
					2.c	Relate concrete and pictorial manipulations that model polynomial operations to their corresponding symbolic representations.
					2.b	Model products of polynomials with concrete objects and their related pictorial representations.
2					2.f	Find the quotient of polynomials, using a monomial or binomial divisor, or a completely factored divisor.
					2.c	Relate concrete and pictorial manipulations that model polynomial operations to their corresponding symbolic representations.
					2.b	Model quotients of polynomials with concrete objects and their related pictorial representations.
12					2.g	Factor completely first- and second-degree polynomials with integral coefficients.
					2.h	Identify prime polynomials.
					2.i	Use the $x$ -intercepts from the graphical representation of the polynomial to determine and confirm its factors.
6					7.a	Determine whether a relation, represented by a set of ordered pairs, a table, or a graph is a function.
					7.b	Identify the domain and range for a relation, given a set of ordered pairs, a table, or a graph.
					7.c	For each $x$ in the domain of $f$ , find $f(x)$ .
					7.d	Represent relations and functions using concrete, verbal, numeric, graphic, and algebraic forms. Given one representation, students will be able to represent the relation in another form.

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<b>THIRD QUARTER</b>				
<b>Units</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
<b>SOL(s)</b>	8 a, b, c, d, e	6 c, d, e	6 a, b, g, h, i, j, k, l	11 a, b, c, d
<b>Textbook Correlation</b>	5-5, 5-6, 12-1	6-1 to 6-5	6.6	6-6, 7- 5
<b>ESS</b>	Direct Variation Inverse Variation	Slope-2-Slope The Submarine	Transformationally Speaking Transformation Investigation Slippery Slope Equations of Lines	Quadratic Curve of Best Fit Line of Best Fit Linear Curve of Best Fit
<b>Vocabulary</b>	Proportion Rate Ratio Dependent variable Independent variable Slope y-intercept Factor Direct variation Indirect variation	Horizontal line form Point-slope form Rate of change Slope Slope-intercept form Standard form Vertical line form x-intercept y-intercept Constant Function Dependent variable	Transformation Translation Reflection Slope Slope-intercept form x-intercept y-intercept Parent function Function families Coordinate Horizontal line form Point-slope form Rate of change Standard form	Circle Chord Curve of best fit Independent Variable Dependent variable Linear equation /slope y-intercept Line of best fit

Days	Date Introduced	Dates Taught	Date Assessed	Dates Remediation	SOL	Topic
5					8.a	Given a situation, including a real-world situation, determine whether a direct variation exists.
					8.c	Write an equation for a direct variation, given a set of data.
					8.e	Graph an equation representing a direct variation, given a set of data.
					8.b	Given a situation, including a real-world situation, determine whether an inverse variation exists.
					8.d	Write an equation for an inverse variation, given a set of data.
5					6.c	Find the slope of the line, given the equation of a linear function.
					6.d	Find the slope of a line, given the coordinates of two points on the line.
					6.e	Find the slope of a line, given the graph of a line.
15					6.f	Recognize and describe a line with a slope that is positive, negative, zero, or undefined. (Parallel lines have equal slopes and the product of the slopes of perpendicular lines is -1 unless one of the lines has an undefined slope.)
					6.a	Graph linear equations in two variables, including those that arise from a variety of real-world situations.
					6.b	Use the parent function $y = x$ and describe transformations defined by changes in the slope or $y$ -intercept.
					6.g	Use transformational graphing to investigate effects of changes in equation parameters on the graph of the equation.
					6.h	Write an equation of a line when given the graph of a line.
					6.i	Write an equation of a line when given two points on the line whose coordinates are integers.
					6.j	Write an equation of a line when given the slope and a point on the line whose coordinates are integers.
					6.k	Write an equation of a vertical line as $x = a$ .
					6.l	Write an equation of a horizontal line as $y = c$ .

<b>Days</b>	<b>Date Introduced</b>	<b>Dates Taught</b>	<b>Date Assessed</b>	<b>Dates Remediation</b>	<b>SOL</b>	<b>Topic</b>
3					11.a	Write an equation for a curve of best fit, given a set of no more than twenty data points in a table, a graph, or real-world situation.
					11.b	Make predictions about unknown outcomes, using the equation of the curve of best fit.
					11.c	Design experiments and collect data to address specific, real-world questions.
					11.d	Evaluate the reasonableness of a mathematical model of a real-world situation.

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<b>FOURTH QUARTER</b>			
<b>Units</b>	<b>17</b>	<b>18</b>	<b>19</b>
<b>SOL(s)</b>	4 g, h, i, j, k	5 d 4 g	4 c, d, f
<b>Textbook Correlation</b>	7-1 to 7-4	7-5 to 7-6	10-1, 10-2, 10-4, 10-5, 10-7
<b>ESS</b>	How Much is That Tune? Spring Fling Carnival The Exercise Fields	Graph Systems of Inequalities	Factoring for Zero
<b>Vocabulary</b>	Ordered pair Coordinate Scatterplot System of linear equations Function Solution set Intersection Coefficient Constant Infinitely many solutions	Inequality Solution System of inequalities	Zeros of a function Root of a function Factor x-intercept Quadratic equation

Days	Date Introduced	Dates Taught	Date Assessed	Dates Remediation	SOL	Topic
5					4.g	Given a system of two linear equations in two variables that has a unique solution, solve the system by substitution or elimination to find the ordered pair which satisfies both equations.
					4.h	Given a system of two linear equations in two variables that has a unique solution, solve the system graphically to find the point of intersection.
					4.i	Determine whether a system of two linear equations has one solution, no solution, or infinite solutions.
					4.j	Write a system of two linear equations that models a real-world situation.
					4.k	Interpret and determine the reasonableness of the algebraic or graphical solution of a system of two linear equations that models a real-world situation.
5					5.d	Solve systems of linear inequalities algebraically and graphically.
					4.g	Given a system of two linear inequalities in two variables that has a unique solution, solve the system by substitution or elimination to find the ordered pair which satisfies both equations.
8					4.c	Solve quadratic equations.
					4.d	Identify the roots or zeros of a quadratic function over the real number system as the solution(s) to the quadratic equation that is formed by setting the given quadratic expression equal to zero.
					4.f	Confirm algebraic solutions to quadratic equations, using a graphing calculator.