

Algebra Grade 8 EWMMS

Unit 1: Solving Equations and Inequalities (13 days)	Unit 2: Functions and Sequences (9 days)	Unit 3: Linear Functions (15 days)
Topics Lesson 1 - Solving 1 and 2 Step Equations Lesson 2 - Solving Equations with Distributing and Combining Like Terms Lesson 3 - Variables on both sides of the equation Lesson 4 - Mixed equations (variables on both sides, distributing, combining like terms) Lesson 5 - Mixed equations with decimals and fractions Lesson 6 - Translating Expressions Lesson 7 - Translate and solve equations Lesson 8 - Solving Inequalities and graphing on a number line Lesson 9 - Solving inequalities with negative variables Lesson 10 - Inequality word problems Lesson 11 - Literal equations	Topics Lesson 1 - Functions and Relations Lesson 2 - Function notation Lesson 3 - Evaluating Functions with 2 variables Lesson 4 - Sequences- Explicit Lesson 5 - Sequences- Recursive Lesson 6 - Review of Functions and Sequences	Topics Lesson 1 - Calculate Slope from 2 points, Lesson 2 - Calculate Slope on a Graph, and Identify from an Equation Lesson 3 - Graphing Lines Given Slope and Y-intercept Lesson 4 - Writing the Equation of a line Point Slope Form (Given slope and passes through a point) Lesson 5 - Writing the Equation of a line Slope intercept form (Given slope and passes through a point) Lesson 6 - Writing the Equation of a line (two ordered pairs) Lesson 7 - Graphing Inequalities Lesson 8 - Modeling Linear Equations (word problem) Lesson 9 - Modeling Inequalities (word problem)

Unit 4: Systems of Equations and Inequalities (15 days)	Unit 5: Linear Regressions (6 days)	Unit 6: Operations of Polynomials (13 days)
Topics Lesson 1 - Graphing a system of linear equations in Slope Intercept Form Lesson 2 - Graphing a System of linear equations not in Slope Intercept Form Lesson 3 - System of equations algebraically using Equal Values Method Lesson 4-System of equations algebraically using Substitution method Lesson 5 - System of equations algebraically- Elimination method (Adding and subtracting) Lesson 6 - System of Equations algebraically- Elimination method (Multiplying then adding and subtracting) Lesson 7 - System of equations word problems algebraically Lesson 8 - System of equations word problems graphically Lesson 9 - System of Inequalities Graphically Lesson 10 - System of Inequalities word problems graphically	Topics Lesson 1 - Correlation and scatter plot Lesson 2 - Correlation Coefficient and linear regression equation Lesson 3 - Creating scatter plots and line of best fit Lesson 4 - Linear Regression equation to predict outcomes and residual	Topics Lesson 1 - Vocabulary of Polynomials Lesson 2 - Adding and subtracting of polynomials Lesson 3 - Subtracting with turnaround words Lesson 4 - Multiplying Polynomials (Laws of Exponents) Lesson 5 - Multiplying polynomials (Box Method and Double Distribution FOIL) Lesson 6 - Adding, Subtracting, Multiplying Polynomials (using the calculator) Lesson 7 - Area and Perimeter problems Lesson 8 - Area and Perimeter word problems Lesson 9 - Division of Polynomials by Monomials

Unit 7: Factoring (14 days)	Unit 8: Solving Quadratic Equations (11 days)	Unit 9: Quadratic Functions and Modeling (13 days)
Topics Lesson 1 - Finding GCF Lesson 2 - Factoring out the GCF Lesson 3 - Review of perfect squares Lesson 4-Difference of Two Squares requirements Lesson 5 - Factoring Difference of Two Squares requirements with GCF Lesson 6 - Factoring Trinomials when $a=1$ Lesson 7 - Factoring trinomials using the calculator Lesson 8 - Factoring Completely Lesson 9- Factor by Grouping Lesson 10 - Factoring Trinomials when $a>1$ Lesson 11- Factoring Completely when $a > 1$	Topics Lesson 1 - Solving quadratic equations in the form $ax^2 + c = 0$ and $a(x + b)^2 = c$ Lesson 2 – Solving quadratic equations in the form $ax^2 + bx + c = 0$ Lesson 3 - Solving quadratic equations in the form $ax^2 + bx + c = 0$ Lesson 4 – Solving quadratic equations by factoring the difference of squares Lesson 5 – Solving quadratic equations by completing the square Lesson 6 - Solving quadratic equations by completing the square Lesson 7 – Solving quadratic equations using the quadratic formula Lesson 8 – Solving quadratic equations using the calculator Lesson 9 – Solving quadratic equation word problems	Topics Lesson 1 – Graphing quadratic functions by table method – using critical points: axis of symmetry, vertex, maximum, minimum, y-intercept Lesson 2 - Graphing quadratic functions by table method – using critical points now include roots, zeros Lesson 3 – Graphing quadratic functions on a calculator – using all characteristics of quadratics Lesson 4 – Solve quadratic equations graphically Lesson 5 – Solve quadratic equations graphically Lesson 6 – Apply vertical and horizontal translations to quadratic functions Lesson 7 – Apply dilations and reflections to quadratic functions Lesson 8 – Apply all transformations to quadratic functions Lesson 9 – Write quadratic equations that are modeled by a graph Lesson 10 – Compare linear and quadratic models Lesson 11 – Solving systems of linear and quadratic equations

Unit 10: Exponential Relationships (13 days)	Unit 11: Modeling with Exponential (5 days)	Unit 12: Special Functions (8 days)
Topics Lesson 1 –Review multiplying and dividing polynomials using properties of exponents Lesson 2 – Review properties of fractional exponents Lesson 3 – Express numbers in scientific notations, find products and quotients of numbers expressed in scientific notation Lesson 4 – Use the graphing calculator to investigate families of exponential functions Lesson 5 – Graph exponential functions and explain the data that display exponential behavior Lesson 6 – Use the graphing calculator to solve exponential equations and inequalities Lesson 7 – Solve problems involving exponential growth and decay Lesson 8 - Solve problems involving exponential growth and decay Lesson 9 – Transforming exponential functions in the form $f(x) = ab^x$ (include $x = \text{fractional exponent}$) Lesson 10 - Transforming exponential functions in the form $f(x) = ab^x$ (include $x = \text{fractional exponent}$) Lesson 11 – Compare linear, quadratic and exponential models	Topics Lesson 1 – Relate arithmetic sequences to linear functions Lesson 2 – Identify and relate geometric sequences to exponential functions Lesson 3 – Calculate and interpret the average rate of change for an exponential function Lesson 4 – Write recursive formulas for arithmetic and geometric sequences	Topics Lesson 1 – Identify and graph step functions Lesson 2 – Identify and graph piecewise functions Lesson 3 –Identify and graph absolute value functions Lesson 4 – Transform absolute value functions Lesson 5 – Solve absolute value equations and inequalities from a graph or table of values Lesson 6 - Solve absolute value equations and inequalities from a graph or table of values

Unit 13: Statistics and Data (12 days)		
Lesson 1 – Interpret relative frequencies in the context of the data and recognize association and trends in the data using 2-way frequency tables Lesson 2 - Interpret relative frequencies in the context of the data and recognize association and trends in the data using relative frequencies Lesson 3 – Describe and compare data sets using mean, median, standard deviation, range and quartiles Lesson 4 - Describe and compare data sets using mean, median, standard deviation, range and quartiles Lesson 5 – Using dot plots to display data and the effect of the outlier in a data set Lesson 6 – Represent data using histograms and estimate mean, median, inter-quartile range and standard deviation Lesson 7 – Represent and compare data using boxplots Lesson 8 - Represent and compare data using boxplots, dot plots and histograms Lesson 9 – Use graphing calculator to explore normal distribution curves Lesson 10 - Use graphing calculator to explore normal distribution curves		