

Section	Outcomes	Modifications	Resources
1-1 Variables and Expressions	A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.	Leveled work Hands on Algebra Technology Lab	Algebra pawns Graphing calculators
1-2 Adding and Subtracting Real Numbers	N.ME.08.03 Understand that in decimal form, rational numbers either terminate or eventually repeat, and that calculators truncate or round repeating decimals; locate rational numbers on the number line; know fraction forms of common repeating decimals. L1.1.2 Explain why the multiplicative inverse of a number has the same sign as the number, while the additive inverse of a number has the opposite sign. L1.1.5 Justify numerical relationships.	Leveled work	
1-3 Multiplying and Dividing Real Numbers	N.ME.08.04 Understand that irrational numbers are those that cannot be expressed as the quotient of two integers, and cannot be represented by terminating or repeating decimals; approximate the position of familiar irrational numbers. L1.1.2 Explain why the multiplicative inverse of a number has the same sign as the number, while the additive inverse of a number has the opposite sign. L1.1.4 Describe the reasons for the different effects of multiplication by, or exponentiation of, a positive number by a number less than 0, a number between 0 and 1, and a number greater than 1.	Leveled work	
1-4 Powers and Exponents	A1.1.2 Know the definitions and properties of exponents and roots, transition fluently between them, and apply them in algebraic expressions. A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities. L1.1.6 Explain the importance of the irrational numbers $\sqrt{2}$ and $\sqrt{3}$ in basic right triangle trigonometry; the importance of π because of its role in circle relationships; and the role of e in applications such as continuously compounded interest.	Leveled work	

<p>1-5 Square Roots and Real Numbers</p>	<p>A1.1.2 Know the definitions and properties of exponents and roots, transition fluently between them, and apply them in algebraic expressions. A1.2.9 Know common formulas, and apply appropriately in contextual situations. L1.1.1 Know the different properties that hold in different number systems, and recognize that the applicable properties change in the transition from the positive integers, to all integers, to the rational numbers, and to the real numbers. L1.1.5 Justify numerical relationships. L1.1.6 Explain the importance of the irrational numbers $\sqrt{2}$ and $\sqrt{3}$ in basic right triangle trigonometry; the importance of π because of its role in circle relationships; and the role of e in applications such as continuously compounded interest; L4.1.3 Define and explain the roles of axioms, definitions, theorems, counterexamples, and proofs in the logical structure of mathematics; identify and give examples of each.</p>	<p>Leveled work</p>	
<p>1-6 Order of Operations</p>	<p>A1.1.2 Know the definitions and properties of exponents and roots, transition fluently between them, and apply them in algebraic expressions.</p>	<p>Leveled work</p>	
<p>1-7 Simplifying Expressions</p>	<p>L1.1.1 Know the different properties that hold in different number systems, and recognize that the applicable properties change in the transition from the positive integers, to all integers, to the rational numbers, and to the real numbers. L1.1.3 Explain how the properties of associativity, commutativity, and distributivity, as well as identity and inverse elements, are used in arithmetic and algebraic calculations.</p>	<p>Leveled work Hands On Algebra Connecting Algebra to Geometry Lab</p>	<p>Algebra pawns</p>
<p>1-8 Introduction to Functions</p>	<p>A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships. A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p>	<p>Leveled work</p>	

Section	Outcomes	Modifications	Resources
2-1 Solving Equations by Adding or Subtracting	<p>A2.2.3 Recognize whether a function has and inverse and recognize simple inverse pairs.</p> <p>L1.1.1 Know the different properties that hold in different number systems, and recognize that the applicable properties change in the transition from the positive integers, to all integers, to the rational numbers, and to the real numbers.</p> <p>L1.1.2 Explain why the multiplicative inverse of a number has the same sign as the number, while the additive inverse of a number has the opposite sign.</p>	<p>Leveled work Hands On Algebra</p>	<p>Algebra pawns</p>
2-2 Solving Equations by Multiplying or Dividing	<p>A2.2.3 Recognize whether a function has and inverse and recognize simple inverse pairs.</p> <p>L1.1.1 Know the different properties that hold in different number systems, and recognize that the applicable properties change in the transition from the positive integers, to all integers, to the rational numbers, and to the real numbers.</p> <p>L1.1.2 Explain why the multiplicative inverse of a number has the same sign as the number, while the additive inverse of a number has the opposite sign.</p> <p>L1.1.4 Describe the reasons for the different effects of multiplication by, or exponentiation of, a positive number by a number less than 0, a number between 0 and 1, and a number greater than 1.</p>	<p>Leveled work Hands On Algebra Solve Equations by Graphing Lab</p>	<p>Algebra pawns Graphing Calculators</p>
2-3 Solving 2-Step and Multi-Step Equations	<p>A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p> <p>A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities.</p>	<p>Leveled work Hands On Algebra</p>	<p>Algebra pawns</p>

2-4 Solving Equations with Variables on Both Sides	A1.2.8 Solve an equation involving several variables for a designated variable, and justify steps in the solution; L1.1.3 Explain how the properties of associativity, commutativity, and distributivity, as well as identity and inverse elements, are used in arithmetic and algebraic calculations. L4.3.2 Construct proofs by contradiction; use counterexamples, when appropriate, to disprove a statement.	Leveled work Hands On Algebra	Algebra pawns
2-5 Solving for a Variable	A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables. A2.2.3 Recognize whether a function has and inverse and recognize simple inverse pairs.	Leveled work	
2-6 Rates, Ratios, and Proportions	N.FL.08.11 Solve problems involving ratio units, such as miles per hour, dollars per pound, or persons per square mile.	Leveled work Student examples	
2-7 Applications of Proportions	L1.1.6 Explain the importance of the irrational numbers $\sqrt{2}$ and $\sqrt{3}$ in basic right triangle trigonometry; the importance of π because of its role in circle relationships; and the role of e in applications such as continuously compounded interest. L3.1.2 Describe and interpret logarithmic relationships in contexts such as the Richter scale, the pH scale, or decibel measurements; solve applied problems.	Leveled work	
2-8 Percents	L1.1.3 Explain how the properties of associativity, commutativity, and distributivity, as well as identity and inverse elements, are used in arithmetic and algebraic calculations.	Leveled work Hundreds grids	
2-9 Applications of Percents	N.FL.08.09 Solve problems involving compounded interest or multiple discounts. A1.2.9 Know common formulas, and apply appropriately in contextual situations.	Leveled work	
2-10 Percent Increase and Decrease	N.MR.08.07 Understand percent increase and percent decrease in both sum and product form. N.MR.08.08 Solve problems involving percent increases and decreases.	Leveled work	

Section	Outcomes	Modifications	Resources
3-1 Graphing and Writing Inequalities	<p>A.FO.80.12 Solve linear inequalities in one and two variables, and graph the solution sets.</p> <p>A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.</p> <p>L1.2.1 Use mathematical symbols to represent quantitative relationships and situations.</p> <p>L1.2.2 Interpret representations that reflect absolute value relationships in such contexts as error tolerance.</p>	Leveled work	
3-2 Solving Inequalities by Adding or Subtracting	<p>A.FO.80.12 Solve linear inequalities in one and two variables, and graph the solution sets.</p> <p>A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p> <p>A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.</p> <p>L1.2.1 Use mathematical symbols to represent quantitative relationships and situations.</p>	Leveled work	
3-3 Solving Inequalities by Multiplying or Dividing	<p>A.FO.08.12 Solve linear inequalities in one and two variables, and graph the solution sets.</p> <p>A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p> <p>A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.</p> <p>L1.2.1 Use mathematical symbols to represent quantitative relationships and situations.</p>	Leveled work	

3-4 Solving Two-Step and Multi-Step Inequalities	<p>A.FO.80.12 Solve linear inequalities in one and two variables, and graph the solution sets.</p> <p>A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p> <p>A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.</p> <p>A1.2.3 Solve linear and quadratic equations and inequalities, including systems of up to three linear equations with three unknowns; apply the quadratic formula appropriately.</p>	Leveled work	
3-5 Solving Inequalities with Variables on Both Sides	<p>A.FO.80.12 Solve linear inequalities in one and two variables, and graph the solution sets.</p> <p>A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p> <p>A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.</p> <p>L4.3.2 Construct proofs by contradiction; use counterexamples, when appropriate, to disprove a statement.</p>	Leveled work	
3-6 Solving Compound Inequalities	<p>A.FO.80.12 Solve linear inequalities in one and two variables, and graph the solution sets.</p> <p>L3.1.2 Describe and interpret logarithmic relationships in contexts such as the Richter scale, the pH scale, or decibel measurements; solve applied problems.</p> <p>L4.2.2 Use the connectives “NOT,” “AND,” “OR,” and “IF...,THEN,” in mathematical and everyday settings. Know the truth table of each connective and how to logically negate statements involving these connectives.</p>	Leveled work	

Section	Outcomes	Modifications	Resources
4-1 Graphing Functions	NCTM Standards: students should understand patterns, relations, and functions.	Leveled work	
4-2 Relations and Functions	A.RP.08.04 Use the vertical line test to determine if a graph represents a function in one variable. A2.1.1 Recognize whether a relationship is a function; and identify its domain and range. A2.1.2 Read, interpret, and use function notation, and evaluate a function at a value in its domain. A2.1.4 Recognize that functions may be defined by different expressions over different intervals of their domains; such functions are piecewise-defined.	Leveled work Vertical Line Lab	
4-3 Writing Functions	A.PA.08.03 Recognize basic functions in problem context. A2.1.2 Read, interpret, and use function notation, and evaluate a function at a value in its domain. A2.1.3 Represent functions in symbols, graphs, tables, diagrams, or words, and translate among representations. A2.1.4 Recognize that functions may be defined by different expressions over different intervals of their domains; such functions are piecewise-defined. A2.1.5 Recognize that functions may be defined recursively, and compute values of and graph simple recursively defined functions. L1.2.1 Use mathematical symbols to represent quantitative relationships and situations.	Leveled work	
4-4 Graphing Functions	A2.1.3 Represent functions in symbols, graphs, tables, diagrams, or words, and translate among representations.	Leveled work Function Rules Technology Lab	Graphing calculators

4-5 Scatter Plots and Trend Lines	<p>S1.1.1 Construct and interpret dot plots, histograms, relative frequency histograms, bar graphs, basic control charts, and box plots with appropriate labels and scales; determine which kinds of plots are appropriate for different types of data; compare data sets and interpret differences based on graphs and summary statistics.</p> <p>S2.1.1 Construct a scatterplot for a bivariate data set with appropriate labels and scales.</p> <p>S2.1.2 Given a scatterplot, identify patterns, clusters, and outliers; recognize no correlation, weak correlation, and strong correlation.</p> <p>S2.1.3 Estimate and interpret Pearson's correlation coefficient for a scatterplot of a bivariate data set; recognize that correlation measures the strength of linear association.</p> <p>S2.1.4 Differentiate between correlation and causation; know that a strong correlation does not imply a cause-and-effect relationship; recognize the role of lurking variables in correlation.</p>	Leveled work	
4-6 Arithmetic Sequences	L2.2.1 Find the nth term in arithmetic, geometric, or other simple sequences.	Leveled work	

Subject: Math

Grade: 8th

Chapter/Outcome: Linear Functions (5) Date Revised: February 2010

Section	Outcomes	Modifications	Resources
5-1 Identifying Linear Functions	<p>A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships.</p> <p>A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p> <p>A2.1.7 Identify and interpret the key features of a function from its graph or its formula.</p> <p>A3.1.1 Identify the family of function best suited for modeling a given real-world situation.</p> <p>A3.1.2 Adapt the general symbolic form of a function to one that fits the specifications of a given situation by using the information to replace arbitrary constants with numbers. In the example above, substitute the given values.</p>	Leveled work	

5-2 Using Intercepts	A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships. A2.4.3 Relate the coefficients in a linear function to the slope and x- and y- intercepts of its graph.	Leveled work Connecting Algebra to Geometry Lab	
5-3 Rate of Change and Slope	A.FO.08.07 Recognize and apply the common formulas. A2.1.7 Identify and interpret the key features of a function from its graph or its formula. A2.3.2 Describe the tabular pattern associated with constant rate of change; or variable rates of change.	Leveled work Explore Constant Changes Lab	
5-4 The Slope Formula	A.PA.08.03 Recognize basic functions in problem context. A1.2.9 Know common formulas, and apply appropriately in contextual situations. S2.2.1 For bi-variate data which appear to form a linear pattern, find the least squares regression line by estimating visually and by calculating the equation of the regression line; interpret the slope of the equation for a regression line.	Leveled work	
5-5 Direct Variation	A.PA.08.02 For basic functions, e.g., simple quadratics, direct and indirect variation, and population growth, describe how changes in one variable affect the others. A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships. A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve. A2.4.2 Graph lines given appropriate information.	Leveled work	
5-6 Slope-Intercept Form	A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships. S2.2.1 For bivariate data which appear to form a linear pattern, find the least squares regression line by estimating visually and by calculating the equation of the regression line; interpret the slope of the equation for a regression line.	Leveled work	
5-7 Point-Slope Form	A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships. A2.4.1 Write the symbolic forms of linear functions given appropriate information, and convert between forms.	Leveled work	

5-8 Slopes of Parallel and Perpendicular Lines	A.FO.08.07 Recognize and apply the common formulas. A2.4.4 Find an equation of the line parallel or perpendicular to given line, through a given point; understand and use the fact that non-vertical parallel lines have equal slopes, that non-vertical perpendicular lines have slopes that multiply to give -1.	Leveled work Graph Linear Functions Technology Lab	Graphing calculators
5-9 Transforming Linear Functions	G.TR.08.10 Understand and use reflective and rotational symmetries of two-dimensional shapes and relate them to transformations to solve problems. A2.2.2 Apply given transformations to basic functions, and represent symbolically. A2.3.1 Identify a function as a member of a family of functions based on its symbolic, or graphical representation; recognize that different families of functions have different asymptotic behavior at infinity, and describe these behaviors. A2.3.3 Write the general symbolic forms that characterize each family of functions. A2.4.2 Graph lines given appropriate information. A2.7.3 Analyze the graphs of power functions, noting reflectional or rotational symmetry.	Leveled work The Family of Linear Functions Technology Lab	Graphing Calculators

Subject: Math
2010

Grade: 8th Chapter/Outcome: Systems of Equations and Inequalities (6)

Date Revised: February

Section	Outcomes	Modifications	Resources
6-1 Solving Systems by Graphing	A.FO.08.11 Solve simultaneous linear equations in two variables by graphing, by substitution, and by linear combination; estimate solutions using graphs; include examples with no solutions and infinitely many solutions. S2.2.1 For bivariate data which appear to form a linear pattern, find the least squares regression line by estimating visually and by calculating the equation of the regression line; interpret the slope of the equation for a regression line. S2.2.2 Use the equation of the least squares regression line to make appropriate predictions.	Leveled work	

6-2 Solving Systems by Substitution	<p>A.FO.08.11 Solve simultaneous linear equations in two variables by graphing, by substitution, and by linear combination; estimate solutions using graphs; include examples with no solutions and infinitely many solutions.</p> <p>N.FL.08.09 Solve problems involving compounded interest or multiple discounts.</p> <p>A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product Identities.</p> <p>L.1.2.4 Organize and summarize a data set in a table, plot, chart, or spreadsheet; find patterns in a display of data; understand and critique data displays in the media.</p>	Leveled work	
6-3 Solving Systems by Elimination	<p>A.FO.08.11 Solve simultaneous linear equations in two variables by graphing, by substitution, and by linear combination; estimate solutions using graphs; include examples with no solutions and infinitely many solutions.</p>	Leveled work	
6-4 Solving Special Systems	<p>A.FO.08.11 Solve simultaneous linear equations in two variables by graphing, by substitution, and by linear combination; estimate solutions using graphs; include examples with no solutions and infinitely many solutions.</p> <p>A.FO.08.13 Set up and solve applied problems involving simultaneous linear equations and linear inequalities.</p>	Leveled work	
6-5 Solving Linear Inequalities	<p>A.FO.08.12 Solve linear inequalities in one and two variables, and graph the solution sets.</p> <p>A.FO.08.13 Set up and solve applied problems involving simultaneous linear equations and linear inequalities.</p>	Leveled work	
6-6 Solving Systems of Linear Inequalities	<p>A.FO.08.13 Set up and solve applied problems involving simultaneous linear equations and linear inequalities.</p> <p>A1.2.3 Solve linear and quadratic equations and inequalities, including systems of up to three linear equations with three unknowns; apply the quadratic formula appropriately;</p>	Leveled work	

Section	Outcomes	Modifications	Resources
7-1 Integer Exponents	<p>N.ME.08.02 Understand meanings for zero and negative integer exponents.</p> <p>L1.1.1 Know the different properties that hold in different number systems, and recognize that the applicable properties change in the transition from the positive integers, to all integers, to the rational numbers, and to the real numbers.</p> <p>L2.1.2 Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.</p>	Leveled work	
7-2 Powers of 10 and Scientific Notation	<p>N.ME.08.02 Understand meanings for zero and negative integer exponents.</p> <p>L1.1.4 Describe the reasons for the different effects of multiplication by, or exponentiation of, a positive number by a number less than 0, a number between 0 and 1, and a number greater than 1.</p> <p>L2.1.3 Explain the exponential relationship between a number and its base 10 logarithm, and use it to relate rules of logarithms to those of exponents in expressions involving numbers.</p>	Leveled work	
7-3 Multiplication Properties of Exponents	<p>N.ME.08.02 Understand meanings for zero and negative integer exponents.</p> <p>L1.1.1 Know the different properties that hold in different number systems, and recognize that the applicable properties change in the transition from the positive integers, to all integers, to the rational numbers, and to the real numbers.</p> <p>L2.1.2 Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.</p>	Leveled work	

7-4 Division Properties of Exponents	<p>N.ME.08.02 Understand meanings for zero and negative integer exponents.</p> <p>L1.1.4 Describe the reasons for the different effects of multiplication by, or exponentiation of, a positive number by a number less than 0, a number between 0 and 1, and a number greater than 1.</p> <p>L2.1.2 Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.</p> <p>L3.1.2 Describe and interpret logarithmic relationships in contexts such as the Richter scale, the pH scale, or decibel measurements; solve applied problems.</p>	Leveled work	
7-5 Polynomials	<p>A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.</p> <p>A2.2.1 Combine functions by addition, subtraction, multiplication, and division.</p> <p>A2.7.1 Write the symbolic form and sketch the graph of power functions.</p> <p>A2.8.1 Write the symbolic form and sketch the graph of simple polynomial functions.</p> <p>A2.8.2 Understand the effects of degree, leading coefficient, and multiplicity of real zeros on the graphs of polynomial functions of degree greater than 2.</p>	Leveled work	
7-6 Adding and Subtracting Polynomials	<p>A1.1.4 Add, subtract, multiply, and simplify polynomials and rational expressions.</p> <p>A2.2.1 Combine functions by addition, subtraction, multiplication, and division.</p>	Leveled work	
7-7 Multiplying Polynomials	<p>G.SR.08.05 Solve applied problems involving areas of triangles, quadrilaterals, and circles.</p> <p>A1.1.4 Add, subtract, multiply, and simplify polynomials and rational expressions.</p> <p>A2.8.1 Write the symbolic form and sketch the graph of simple polynomial functions.</p>	Leveled work	
7-8 Special Products	<p>A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities.</p>	Leveled work	

Section	Outcomes	Modifications	Resources
8-1 Factors and Greatest Common Factors	A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product Identities. L2.2.3 Use iterative processes in such examples as computing compound interest or applying approximation procedures.	Leveled work	
8-2 Factoring by GCF	A.FO.08.08 Factor simple quadratic expressions with integer coefficients. A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities.	Leveled work	
8-3 Factoring $x^2 + bx + c$	A.FO.08.08 Factor simple quadratic expressions with integer coefficients. A2.8.3 Determine the maximum possible number of zeros of a polynomial function, and understand the relationship between the x -intercepts of the graph and the factored form of the function.	Leveled work	
8-4 Factoring $ax^2 + bx + c$	A.FO.08.08 Factor simple quadratic expressions with integer coefficients. A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities.	Leveled work	
8-5 Factoring Special Products	A.FO.08.07 Recognize and apply the common formulas. L3.1.1 Convert units of measurement within and between systems; explain how arithmetic operations on measurements affect units, and carry units through calculations correctly.	Leveled work	
8-6 Choosing a Factoring Method	A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities.	Leveled work	

Section	Outcomes	Modifications	Resources
9-1 Identifying Quadratic Functions	<p>A2.6.1 Write the symbolic form and sketch the graph of a quadratic function given appropriate information.</p> <p>A2.6.2 Identify the elements of a parabola given its symbolic form or its graph, and relate these elements to the coefficient of the symbolic form of the function.</p> <p>A2.6.4 Relate the number of real solutions of a quadratic equation to the graph of the associated quadratic function.</p> <p>A2.6.5 Express quadratic functions in vertex form to identify their maxima or minima, and in factored form to identify their zeros.</p>	Leveled work	
9-2 Characteristics of Quadratic Functions	<p>A1.2.2 Associate a given equation with a function whose zeros are the solutions of the equation.</p> <p>A2.1.6 Identify the zeros of a function and the intervals where the values of a function are positive or negative, and describe the behavior of a function, as x approaches positive or negative infinity, given the symbolic and graphical representations.</p> <p>A2.6.2 Identify the elements of a parabola given its symbolic form or its graph, and relate these elements to the coefficient of the symbolic form of the function.</p> <p>A3.1.1 Identify the family of function best suited for modeling a given real-world situation.</p> <p>A3.1.2 Adapt the general symbolic form of a function to one that fits the specifications of a given situation by using the information to replace arbitrary constants with numbers. In the example above, substitute the given values.</p>	<p>Leveled work</p> <p>Explore the Axis of Symmetry Lab</p>	Graph paper
9-3 Graphing Quadratic Functions	<p>A.RP.08.05 Relate quadratic functions in factored form and vertex form to their graphs, and vice versa; in particular, note that solutions of a quadratic equation are the x-intercepts of the corresponding quadratic function.</p> <p>A2.6.1 Write the symbolic form and sketch the graph of a quadratic function given appropriate information.</p>	<p>Leveled work</p> <p>The Family of Quadratic Functions</p> <p>Technology Labs</p>	Graphing Calculators

<p>9-4 Transforming Quadratic Functions</p>	<p>A.PA.08.02 For basic functions, e.g., simple quadratics, direct and indirect variation, and population growth, describe how changes in one variable affect the others. A2.6.1 Write the symbolic form and sketch the graph of a quadratic function given appropriate information. A3.1.1 Identify the family of function best suited for modeling a given real-world situation.</p>	<p>Leveled work</p>	
<p>9-5 Solving Quadratic Equations by Graphing</p>	<p>A.FO.08.09 Solve applied problems involving simple quadratic equations. A2.6.1 Write the symbolic form and sketch the graph of a quadratic function given appropriate information. A2.6.4 Relate the number of real solutions of a quadratic equation to the graph of the associated quadratic function.</p>	<p>Leveled work Explore Roots, Zeros and x-intercepts Technology Lab</p>	<p>Graphing Calculators</p>
<p>9-6 Solving Quadratic Equations by Factoring</p>	<p>A.FO.08.08 Factor simple quadratic expressions with integer coefficients. A1.2.3 Solve linear and quadratic equations and inequalities, including systems of up to three linear equations with three unknowns; apply the quadratic formula appropriately.</p>	<p>Leveled work</p>	
<p>9-7 Solving Quadratic Equations by Using Square Roots</p>	<p>A1.1.2 Know the definitions and properties of exponents and roots, transition fluently between them, and apply them in algebraic expressions. A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities. L1.1.1 Know the different properties that hold in different number systems, and recognize that the applicable properties change in the transition from the positive integers, to all integers, to the rational numbers, and to the real numbers. L4.1.3 Define and explain the roles of axioms, definitions, theorems, counterexamples, and proofs in the logical structure of mathematics; identify and give examples of each.</p>	<p>Leveled work Model Completing the Square Lab</p>	
<p>9-8 Completing the Square</p>	<p>A.FO.08.08 Factor simple quadratic expressions with integer coefficients. A2.6.3 Convert quadratic functions from standard to vertex form by completing the square.</p>	<p>Leveled work</p>	

9-9 The Quadratic Formula and the Discriminant	N.FL.08.05 Estimate and solve problems with square roots and cube roots using calculators. A1.2.3 Solve linear and quadratic equations and inequalities, including systems of up to three linear equations with three unknowns; apply the quadratic formula appropriately. A1.2.9 Know common formulas, and apply appropriately in contextual situations.	Leveled work	
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Subject: Math

Grade: 8th Chapter/Outcome: Data Analysis and Probability (10)

Date Revised: February 2010

Section	Outcomes	Modifications	Resources
10-1 Organizing and Displaying Data	S1.1.1 Construct and interpret dot plots, histograms, relative frequency histograms, bar graphs, basic control charts, and box plots with appropriate labels and scales; determine which kinds of plots are appropriate for different types of data; compare data sets and interpret differences based on graphs and summary statistics. S1.1.2 Given a distribution of a variable in a data set, describe its shape, including symmetry or skewness, and state how the shape is related to measures of center and measures of variation with particular attention to the effects of outliers on these measures.	Leveled work	
10-2 Frequency and Histograms	D.PR.08.03 Compute relative frequencies from a table of experimental results for a repeated event. Interpret the results using relationship of probability to relative frequency. S1.1.1 Construct and interpret dot plots, histograms, relative frequency histograms, bar graphs, basic control charts, and box plots with appropriate labels and scales; determine which kinds of plots are appropriate for different types of data; compare data sets and interpret differences based on graphs and summary statistics.	Leveled work	

10-3 Data Distributions	S1.1.2 Given a distribution of a variable in a data set, describe its shape, including symmetry or skewness, and state how the shape is related to measures of center and measures of variation with particular attention to the effects of outliers on these measures. S2.1.2 Given a scatterplot, identify patterns, clusters, and outliers; recognize no correlation, weak correlation, and strong correlation.	Leveled work Use Technology to Make Graphs Lab	Graphing Calculators
10-4 Misleading Graphs and Statistics	D.AN.08.02 Recognize practices of collecting and displaying data that may bias the presentation or analysis.	Leveled work	
10-5 Experimental Probability	L1.3.2 Define and interpret commonly used expressions of probability. L1.3.3 Recognize and explain common probability misconceptions such as “hot streaks” and “being due.” S3.1.3 Distinguish between an observational study and an experimental study, and identify, in context, the conclusions that can be drawn from each. S4.1.1 Understand and construct sample spaces in simple situations.	Leveled work	
10-6 Theoretical Probability	D.PR.08.05 Find and/or compare the theoretical probability, the experimental probability, and/or the relative frequency of a given event. L1.3.2 Define and interpret commonly used expressions of probability.	Leveled work	
10-7 Independent and Dependent Events	L1.3.2 Define and interpret commonly used expressions of probability. S4.1.2 Define mutually exclusive events, independent events, dependent events, compound events, complementary events and conditional probabilities; and use the definitions to compute probabilities.	Leveled work	
10-8 Combinations and Permutations	D.PR.08.04 Apply the Basic Counting Principle to find total number of outcomes possible for independent and dependent events, and calculate the probabilities using organized lists or tree diagrams.	Leveled work	

Section	Outcomes	Modifications	Resources
11-1 Geometric Sequences	<p>L2.2.1 Find the nth term in arithmetic, geometric, or other simple sequences.</p> <p>L2.2.2 Compute sums of finite arithmetic and geometric sequences.</p> <p>L2.2.3 Use iterative processes in such examples as computing compound interest or applying approximation procedures.</p>	Leveled work	
11-2 Exponential Functions	<p>A2.5.1 Write the symbolic form and sketch the graph of an exponential function given appropriate information.</p> <p>A2.5.2 Interpret the symbolic forms and recognize the graphs of exponential and logarithmic functions; recognize the logarithmic function as the inverse of the exponential.</p> <p>A2.5.3 Apply properties of exponential and logarithmic functions.</p> <p>L2.1.2 Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.</p> <p>L2.1.3 Explain the exponential relationship between a number and its base 10 logarithm, and use it to relate rules of logarithms to those of exponents in expressions involving numbers.</p> <p>L2.2.1 Find the nth term in arithmetic, geometric, or other simple sequences.</p>	Leveled work	
11-3 Exponential Growth and Decay	<p>A1.2.7 Solve exponential and logarithmic equations, and justify steps in the solution.</p> <p>A2.5.4 Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and how the base affects the rate of growth or decay.</p> <p>A2.5.5 Relate exponential and logarithmic functions to real phenomena, including half-life and doubling time.</p> <p>A3.1.1 Identify the family of function best suited for modeling a given real-world situation.</p>	Leveled work	

11-4 Linear, Quadratic, and Exponential Models	A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships. A.PA.08.03 Recognize basic functions in problem context. A1.2.7 Solve exponential and logarithmic equations, and justify steps in the solution.	Leveled work	Graphing Calculators
11-5 Square Root Functions	A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships. A3.1.1 Identify the family of function best suited for modeling a given real-world situation. A3.1.2 Adapt the general symbolic form of a function to one that fits the specifications of a given situation by using the information to replace arbitrary constants with numbers. In the example above, substitute the given values.	Leveled work	
11-6 Radical Expressions	A1.2.6 Solve power equations and equations including radical expressions, justify steps in the solution, and explain how extraneous solutions may arise. L2.1.6 Recognize when exact answers aren't always possible or practical; use appropriate algorithms to approximate solutions to equations.	Leveled work Graph Radical Functions Technology Lab	
11-7 Adding and Subtracting Radical Expressions	A1.1.2 Know the definitions and properties of exponents and roots, transition fluently between them, and apply them in algebraic expressions.	Leveled work	
11-8 Multiplying and Dividing Radical Expressions	N.ME.08.01 Understand the meaning of a square root of a number and its connection to the square whose area is the number; understand the meaning of a cube root and its connection to the volume of a cube. L2.1.5 Add, subtract, and multiply complex numbers; use conjugates to simplify quotients of complex numbers.	Leveled work	
11-9 Solving Radical Expressions	A2.7.1 Write the symbolic form and sketch the graph of power functions.	Leveled work	

Section	Outcomes	Modifications	Resources
12-1 Inverse Variation	<p>A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships.</p> <p>A1.1.6 Transform exponential and logarithmic expressions into equivalent forms using the properties of exponents and logarithms including the inverse relationship between exponents and logarithms.</p> <p>A1.2.2 Associate a given equation with a function whose zeros are the solutions of the equation.</p>	Leveled work	
12-2 Rational Functions	<p>A2.1.7 Identify and interpret the key features of a function from its graph or its formula.</p> <p>A2.9.1 Write the symbolic form and sketch the graph of simple rational functions.</p> <p>A2.9.2 Analyze graphs of simple rational functions and understand the relationship between the zeros of the numerator and denominator and the function's intercepts, asymptotes, and domain.</p> <p>A3.1.1 Identify the family of function best suited for modeling a given real-world situation.</p> <p>A3.1.2 Adapt the general symbolic form of a function to one that fits the specifications of a given situation by using the information to replace arbitrary constants with numbers. In the example above, substitute the given values.</p>	Leveled work	
12-3 Simplifying Rational Expressions	<p>G.SR.08.07 Understand the concept of surface area, and find the surface area of prisms, cones, spheres, pyramids, and cylinders.</p> <p>A1.2.5 Solve polynomial equations and equations involving rational expressions, and justify steps in the solution.</p>	Leveled work Graph Rational Functions Technology Lab	Graphing Calculators

12-4 Multiplying and Dividing Rational Expressions	<p>A1.2.5 Solve polynomial equations and equations involving rational expressions, and justify steps in the solution.</p> <p>A2.3.1 Identify a function as a member of a family of functions based on its symbolic, or graphical representation; recognize that different families of functions have different asymptotic behavior at infinity, and describe these behaviors.</p> <p>A2.9.1 Write the symbolic form and sketch the graph of simple rational functions.</p> <p>L1.3.3 Recognize and explain common probability misconceptions such as “hot streaks” and “being due.”</p> <p>L2.1.2 Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.</p>	Leveled work	
12-5 Adding and Subtracting Rational Expressions	<p>L2.1.2 Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.</p>	Leveled work	
12-6 Dividing Polynomials	<p>A1.1.5 Divide a polynomial by a monomial.</p>	Leveled work	
12-7 Solving Rational Equations	<p>A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.</p> <p>A1.2.5 Solve polynomial equations and equations involving rational expressions, and justify steps in the solution.</p>	Leveled work	