

8th Compacted Grade MCCRS Curriculum Map**First Nine Weeks****NUMBER AND QUANTITY****Unit 1: The Real Number System**

- Module 1: Use properties of rational and irrational numbers
 - N-RN.3

Unit 2: Quantities

- Module 1: Reason quantitatively and use units to solve problems
 - N-Q.1
 - N-Q.2
 - N-Q.3

ALGEBRA**Unit 3: Expressions and Equations**

- Module 1: Analyze and solve linear equations and pairs of simultaneous linear equations
 - 8.EE.8
 - 8.EE.8a
 - 8.EE.8b
 - 8.EE.8c

Unit 4: Seeing Structure in Expressions

- Module 1: Interpret the structure of expressions
 - A-SSE.1
 - A-SSE.1a
 - A-SSE.1b
 - A-SSE.2
- Module 2: Write expressions in equivalent forms to solve problems
 - A-SSE.3
 - A-SSE.3a
 - A-SSE.3b
 - A-SSE.3c

Unit 5: Arithmetic with Polynomials and Rational Expressions

- Module 1: Perform arithmetic operations on polynomials
 - A-APR.1

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- Module 2: Understand the relationships between zeros and factors of polynomials
 - A-APR.3

Unit 6: Creating Equations

- Module 1: Create equations that describe numbers or relationships
 - A-CED.1
 - A-CED.2
 - A-CED.3
 - A-CED.4

Unit 7: Reasoning with Equations and Inequalities

- Module 1: Understand solving equations as a process of reasoning and explain the reasoning
 - A-REI.1

Second Nine Weeks

Unit 7: Reasoning with Equations and Inequalities (continued)

- Module 2: Solve equations and inequalities in one variable
 - A-REI.3
 - A-REI.4
 - A-REI.4a
 - A-REI.4b
- Module 3: Solve systems of equations
 - A-REI.5
 - A-REI.6
- Module 4: Represent and solve equations and inequalities graphically
 - A-REI.10
 - A-REI.11
 - A-REI.12

FUNCTIONS

Unit 8: Functions

- Module 1: Define, evaluate, and compare functions
 - 8.F.1
 - 8.F.2
 - 8.F.3
- Module 2: Use functions to model relationships between quantities

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- 8.F.4
- 8.F.5

Unit 9: Interpreting Functions

- Module 1: Understand the concept of a function and use function notation
 - F-IF.1
 - F-IF.2
 - F-IF.3
- Module 2: Interpret functions that arise in applications in terms of the context
 - F-IF.4
 - F-IF.5
 - F-IF.6
- Module 3: Analyze functions using different representations
 - F-IF.7
 - F-IF.7a
 - F-IF.7b
 - F-IF.8
 - F-IF.8a
 - F-IF.9

Third Nine Weeks**Unit 10: Building Functions**

- Module 1: Build a function that models a relationship between two quantities
 - F-BF.1
- Module 2: Build new functions from existing functions
 - F-BF.3

Unit 11: Linear, Quadratic, and Exponential Models

- Module 1: Construct and compare linear, quadratic, and exponential models and solve problems
 - F-LE.1
 - F-LE.1a
 - F-LE.1b
 - F-LE.1c
 - F-LE.2

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- Module 2: Interpret expressions for functions in terms of the situation they model
 - F-LE.5

GEOMETRY

Unit 12: Geometry

- Module 1: Understand and apply the Pythagorean Theorem
 - 8.G.6
 - 8.G.7
 - 8.G.8

STATISTICS AND PROBABILITY

Unit 13: Statistics and Probability

- Module 1: Investigate patterns of association in bivariate data
 - 8.SP.1
 - 8.SP.2
 - 8.SP.3
 - 8.SP.4

Unit 14: Interpreting Categorical and Quantitative Data

- Module 1: Summarize, represent, and interpret data on a single count or measurement variable
 - S-ID.1
 - S-ID.2
 - S-ID.3
- Module 2: Summarize represent, and interpret data on two categorical and quantitative variables
 - S-ID.5
 - S-ID.6
 - S-ID.6a
 - S-ID.6b
 - S-ID.6c
- Module 3: Interpret linear models
 - S-ID.7
 - S-ID.8
 - S-ID.9

2016-2017

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First Nine Weeks

Unit 1: The Real Number System

Module 1: Use properties of rational and irrational numbers		
Standards		Mathematical Practices
N-RN.3 <ul style="list-style-type: none"> ● Explain why: <ul style="list-style-type: none"> ○ the sum or product of two rational numbers is rational; ○ the sum of a rational number and an irrational number is irrational; and ○ the product of a nonzero rational number and an irrational number is irrational 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

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Unit 2: Quantities

Module 1: Reason quantitatively and use units to solve problems		
Standards		Mathematical Practices
N-Q.1 <ul style="list-style-type: none"> Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. 		
N-Q.2 <ul style="list-style-type: none"> Define appropriate quantities for the purpose of descriptive modeling.* 		
N-Q.3 <ul style="list-style-type: none"> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

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Unit 3: Expressions and Equations

Module 1 –Analyze and solve linear equations and pairs of simultaneous linear equations	
Standards	Mathematical Practices
8.EE.C.8 <ul style="list-style-type: none"> Analyze and solve pairs of simultaneous linear equations 	8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively. 8.MP.3. Construct viable arguments and critique the reasoning of others. 8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure. 8.MP.8. Look for and express regularity in repeated reasoning.
8. EE.C.8a <ul style="list-style-type: none"> Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. 	8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively. 8.MP.3. Construct viable arguments and critique the reasoning of others. 8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure. 8.MP.8. Look for and express regularity in repeated reasoning.
8.EE.C.8b <ul style="list-style-type: none"> Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. <i>For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.</i> 	8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively. 8.MP.3. Construct viable arguments and critique the reasoning of others. 8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure. 8.MP.8. Look for and express regularity in repeated reasoning.
8.EE.C.8c	8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively.

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<ul style="list-style-type: none"> Solve real-world and mathematical problems leading to two linear equations in two variables. <i>For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.</i> 	8.MP.3. Construct viable arguments and critique the reasoning of others. 8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure. 8.MP.8. Look for and express regularity in repeated reasoning.	
Student Learning Target(s)	Essential Vocabulary	
<ul style="list-style-type: none"> Identify the solution(s) to a system of two linear equations in two variables as the point(s) of intersection of their graphs. Identify cases in which a system of two equations in two unknowns has no solution or infinitely many solutions. Understand the relationship between the graphic representation and the algebraic solution of the system. Solve a system of two linear equations in two unknowns algebraically. Solve simple cases of systems of two linear equations in two variables by inspection. Solve real world problems leading to two linear equations in two variables. Solve mathematical problems leading to two linear equations in two variables. 	<ul style="list-style-type: none"> Systems of linear equations Slope intercept form 	
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving
8.EE.C.8 8.EE.C.8a 8.EE.C.8b 8.EE.C.8c	Lessons 15, 16, 17	Lessons 15, 16, 17

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Unit 4: Seeing Structure in Expressions

Module 1: Reason quantitatively and use units to solve problems		
Standards		Mathematical Practices
A-SSE.1 <ul style="list-style-type: none"> Interpret expressions that represent a quantity in terms of its context 		
A-SSE.1a <ul style="list-style-type: none"> Interpret parts of an expression, such as terms, factors, and coefficients. 		
A-SSE.1b <ul style="list-style-type: none"> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. 		
A-SSE.2 <ul style="list-style-type: none"> Interpret complicated expressions by viewing one or more of their parts as a single entity. <i>For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.</i> 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

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Module 2: Write expressions in equivalent forms to solve problems	
Standards	Mathematical Practices
A-SSE.3 <ul style="list-style-type: none"> Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. 	
A-SSE.3a <ul style="list-style-type: none"> Factor a quadratic expression to reveal the zeros of the function it defines. 	
A-SSE.3b <ul style="list-style-type: none"> Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. 	
A-SSE.3c <ul style="list-style-type: none"> Use the properties of exponents to transform expressions for exponential functions. <i>For example the expression $1.15t$ can be rewritten as $[1.151/12]^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</i> 	
Student Learning Target(s)	Essential Vocabulary

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Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Unit 5: Arithmetic with Polynomials and Rational Expressions

Module 1: Perform arithmetic operations on polynomials.		
Standards	Mathematical Practices	
A-APR.1 <ul style="list-style-type: none"> Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. 		
Student Learning Target(s)	Essential Vocabulary	
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

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Module 2: Perform arithmetic operations on polynomials.		
Standards		Mathematical Practices
A-APR.3 <ul style="list-style-type: none"> Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials). 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Unit 6: Creating Equations

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Module 1: Create equations that describe number or relationships	
Standards	Mathematical Practices
A-CED.1 <ul style="list-style-type: none"> • Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i> 	
A-CED.2 <ul style="list-style-type: none"> • Create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. <i>[Note this standard appears in future courses with a slight variation in the standard language.]</i> 	
A-CED.3 <ul style="list-style-type: none"> • Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. <i>For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.</i> 	
A-CED.4 <ul style="list-style-type: none"> • Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. <i>For example, rearrange Ohm's law $V = IR$ to highlight resistance R.</i> 	
Student Learning Target(s)	Essential Vocabulary

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Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Unit 7: Reasoning with Equations and Inequalities

Module 1: Understand solving equations as a process of reasoning and explain the reasoning		
Standards		Mathematical Practices
A-REI.1 <ul style="list-style-type: none"> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

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Second Nine Weeks
Unit 7: Reasoning with Equations and Inequalities (continued)

Module 2: Solve equations and inequalities in one variable	
Standards	Mathematical Practices
A-REI.3 <ul style="list-style-type: none"> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 	
A-REI.4 <ul style="list-style-type: none"> Solve quadratic equations in one variable. 	
A-REI.4a <ul style="list-style-type: none"> Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. 	
A-REI.4b <ul style="list-style-type: none"> Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions. 	
Student Learning Target(s)	Essential Vocabulary

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Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Module 3: Solve systems of equations	
Standards	Mathematical Practices
A-REI.5 <ul style="list-style-type: none"> Given a system of two equations in two variables, show and explain why the sum of equivalent forms of the equations produces the same solution as the original system. 	
A-REI.6 <ul style="list-style-type: none"> Solve systems of linear equations algebraically, exactly, and graphically while focusing on pairs of linear equations in two variables 	
Student Learning Target(s)	Essential Vocabulary

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Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Module 4: Represent and solve equations and inequalities graphically	
Standards	Mathematical Practices
<p>A-REI.10</p> <ul style="list-style-type: none"> Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). 	
<p>A-REI.11</p> <ul style="list-style-type: none"> Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, quadratic, absolute value, and exponential functions. 	
<p>A-REI.12</p> <ul style="list-style-type: none"> Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. 	
Student Learning Target(s)	Essential Vocabulary

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Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Unit 8: Functions

Module 1: Define, evaluate, and compare functions	
Standards	Mathematical Practices
8.F.A.1 <ul style="list-style-type: none"> • Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. 	8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively. 8.MP.3. Construct viable arguments and critique the reasoning of others. 8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure. 8.MP.8. Look for and express regularity in repeated reasoning.
8.F.A.2 <ul style="list-style-type: none"> • Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal 	8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively. 8.MP.3. Construct viable arguments and critique the reasoning of others.

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<p>descriptions). <i>For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.</i></p>	<p>8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure. 8.MP.8. Look for and express regularity in repeated reasoning.</p>	
<p>8.F.A.3</p> <ul style="list-style-type: none"> Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. <i>For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.</i> 	<p>8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively. 8.MP.3. Construct viable arguments and critique the reasoning of others. 8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure. 8.MP.8. Look for and express regularity in repeated reasoning.</p>	
<p>Student Learning Target(s)</p>	<p>Essential Vocabulary</p>	
<ul style="list-style-type: none"> Identify the input and output of a relation. Determine if a relation is a function. Determine if a graph represents a function. Determine if a set of points represents a function. Calculate the output when given the input. Graph functions using a table of value. Identify the inputs and outputs from a graph. Graph functions on a coordinate plane. 	<ul style="list-style-type: none"> Function Rate of change Initial value Linear function 	
<p>Supplement Resources Correlation</p>		
<p>MCCRS</p>	<p>Ready Mathematics Instruction</p>	<p>Ready Practice and Problem Solving</p>
<p>8.F.A.1 8.F.A.2 8.F.A.3</p>	<p>Lessons 6, 7, 8</p>	<p>Lessons 6, 7, 8</p>

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Standards	Mathematical Practices
<p>8.F.B.4</p> <ul style="list-style-type: none"> ● Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. 	<p>8.MP.1. Make sense of problems and persevere in solving them.</p> <p>8.MP.2. Reason abstractly and quantitatively.</p> <p>8.MP.3. Construct viable arguments and critique the reasoning of others.</p> <p>8.MP.4. Model with mathematics.</p> <p>8.MP.5. Use appropriate tools strategically.</p> <p>8.MP.6. Attend to precision.</p> <p>8.MP.7. Look for and make use of structure.</p> <p>8.MP.8. Look for and express regularity in repeated reasoning.</p>
<p>8.F.B.5</p> <ul style="list-style-type: none"> ● Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally. 	<p>8.MP.1. Make sense of problems and persevere in solving them.</p> <p>8.MP.2. Reason abstractly and quantitatively.</p> <p>8.MP.3. Construct viable arguments and critique the reasoning of others.</p> <p>8.MP.4. Model with mathematics.</p> <p>8.MP.5. Use appropriate tools strategically.</p> <p>8.MP.6. Attend to precision.</p> <p>8.MP.7. Look for and make use of structure.</p> <p>8.MP.8. Look for and express regularity in repeated reasoning.</p>
Student Learning Target(s)	Essential Vocabulary
<ul style="list-style-type: none"> ● Construct a linear function. <ul style="list-style-type: none"> ○ To determine the rate of change (slope) and initial value (y-intercept) from a graph. ○ To determine the rate of change (slope) and initial value (y-intercept) from a table of values. ○ Given the rate of change (slope) and initial value (y-intercept). ○ Given the rate of change (slope) and a point. ○ Given two points. 	<ul style="list-style-type: none"> ● Slope ● Y-intercept ● Qualitative graph

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<ul style="list-style-type: none"> ● Determine the rate of change (slope) and initial value (y-intercept). ● Interpret the rate of change (slope) and initial value (y-intercept) ● Analyze and describe the graph for a functional relationship. <ul style="list-style-type: none"> ○ Determine if a function increase or decrease over an interval. ○ Determine if a function is linear or nonlinear. ○ Determine the intercepts of a function. ● Sketch the graph of a function when given a written description. 	
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MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving
8.F.B.4 8.F.B.5	Lessons 9, 10	Lessons 9, 10

8th Compacted Grade MCCRS Curriculum Map**Unit 9: Interpreting Functions**

Module 1: Understand the concept of a function and use function notation		
Standards		Mathematical Practices
F-IF.1 <ul style="list-style-type: none"> Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$. 		
F-IF.2 <ul style="list-style-type: none"> Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. 		
F-IF.3 <ul style="list-style-type: none"> Recognize that sequences are functions whose domain is a subset of the integers. 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

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Module 2: Interpret functions that arise in applications in terms of the context	
Standards	Mathematical Practices
F-IF.4 <ul style="list-style-type: none"> For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i> 	
F-IF.5 <ul style="list-style-type: none"> Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. <i>For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.</i> 	
F-IF.6 <ul style="list-style-type: none"> Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. 	
Student Learning Target(s)	Essential Vocabulary

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Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Module 3: Analyze functions using different representations	
Standards	Mathematical Practices
F-IF.7 <ul style="list-style-type: none"> Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. 	
F-IF.7a <ul style="list-style-type: none"> Graph functions (linear and quadratic) and show intercepts, maxima, and minima. 	
F-IF.7b <ul style="list-style-type: none"> Graph square root and piecewise-defined functions, including absolute value functions 	
F-IF.8 <ul style="list-style-type: none"> Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. 	
F-IF.8a	

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<ul style="list-style-type: none"> Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context 		
<p>F-IF.9</p> <ul style="list-style-type: none"> Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum</i> 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

THIRD NINE WEEKS

Unit 10: Building Functions

Module 1: Build a function that models a relationship between two quantities

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Standards		Mathematical Practices
F-BF.1 <ul style="list-style-type: none"> Write a function that describes a relationship between two quantities 		
F-BF.1a <ul style="list-style-type: none"> Determine an explicit expression or steps for calculation from a context. 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Module 2: Build new functions from existing functions

Standards	Mathematical Practices
F-BF.3 <ul style="list-style-type: none"> Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using 	

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technology. <i>Include recognizing even and odd functions from their graphs and algebraic expressions for them</i>		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Unit 11: Linear, Quadratic, and Exponential Models

Module 1: Construct and compare linear, quadratic, and exponential models and solve problems	
Standards	Mathematical Practices
F-LE.1 <ul style="list-style-type: none"> Distinguish between situations that can be modeled with linear functions and with exponential functions.* 	
F-LE.1a <ul style="list-style-type: none"> Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. 	
F-LE.1b	

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<ul style="list-style-type: none"> Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. 		
<p>F-LE.1c</p> <ul style="list-style-type: none"> Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. 		
<p>F-LE.2</p> <ul style="list-style-type: none"> Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table) 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Module 2: Interpret expressions for functions in terms of the situation they model	
Standards	Mathematical Practices
<p>F-LE.5</p> <ul style="list-style-type: none"> Interpret the parameters in a linear or exponential function in terms of a context.* 	

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Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Unit 12: Geometry

Module 1: Understand and apply the Pythagorean Theorem	
Standards	Mathematical Practices
8.G.6 <ul style="list-style-type: none"> Explain a proof of the Pythagorean Theorem and its converse 	
8.G.7 <ul style="list-style-type: none"> Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in realworld and mathematical problems in two and three dimensions. 	

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8.G.8		
<ul style="list-style-type: none"> Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Unit 13: Statistics and Probability

Module 1: Investigate patterns of association in bivariate data	
Standards	Mathematical Practices
8.SP.1 <ul style="list-style-type: none"> Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, 	8.MP.1. Make sense of problems and persevere in solving them. 8.MP.2. Reason abstractly and quantitatively. 8.MP.3. Construct viable arguments and critique the reasoning of others. 8.MP.4. Model with mathematics. 8.MP.5. Use appropriate tools strategically. 8.MP.6. Attend to precision. 8.MP.7. Look for and make use of structure.

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positive or negative association, linear association, and non-linear association.	8.MP.8. Look for and express regularity in repeated reasoning.
<p>8.SP.2</p> <ul style="list-style-type: none"> Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. 	<p>8.MP.1. Make sense of problems and persevere in solving them.</p> <p>8.MP.2. Reason abstractly and quantitatively.</p> <p>8.MP.3. Construct viable arguments and critique the reasoning of others.</p> <p>8.MP.4. Model with mathematics.</p> <p>8.MP.5. Use appropriate tools strategically.</p> <p>8.MP.6. Attend to precision.</p> <p>8.MP.7. Look for and make use of structure.</p> <p>8.MP.8. Look for and express regularity in repeated reasoning.</p>
<p>8.SP.3</p> <ul style="list-style-type: none"> Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. <i>For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr. as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</i> 	<p>8.MP.1. Make sense of problems and persevere in solving them.</p> <p>8.MP.2. Reason abstractly and quantitatively.</p> <p>8.MP.3. Construct viable arguments and critique the reasoning of others.</p> <p>8.MP.4. Model with mathematics.</p> <p>8.MP.5. Use appropriate tools strategically.</p> <p>8.MP.6. Attend to precision.</p> <p>8.MP.7. Look for and make use of structure.</p> <p>8.MP.8. Look for and express regularity in repeated reasoning.</p>
<p>8.SP.4</p> <ul style="list-style-type: none"> Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between 	<p>8.MP.1. Make sense of problems and persevere in solving them.</p> <p>8.MP.2. Reason abstractly and quantitatively.</p> <p>8.MP.3. Construct viable arguments and critique the reasoning of others.</p> <p>8.MP.4. Model with mathematics.</p> <p>8.MP.5. Use appropriate tools strategically.</p> <p>8.MP.6. Attend to precision.</p> <p>8.MP.7. Look for and make use of structure.</p> <p>8.MP.8. Look for and express regularity in repeated reasoning.</p>

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<p>the two variables. <i>For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?</i></p>	
Student Learning Target(s)	Essential Vocabulary
<ul style="list-style-type: none"> ● Interpret scatter plots for bivariate (two different variables such as distance and time) measurement data to investigate patterns of association between two quantities. ● Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association ● Justifies the patterns of association that can be seen in bivariate data by constructing, displaying and interpreting scatter plots. ● Formulate a straight line within the plotted data. ● Informally assess the model fit by judging the closeness of the data points to the line. ● Understand that straight lines are used to model the relationship between two quantitative variables ● Solve problems using the equation of a linear model. ● Find the slope and intercept of a linear equation. 	<ul style="list-style-type: none"> ● Scatter plot ● Bivariate ● Outlier ● Association ● Positive association ● Negative association ● Linear ● Non linear ● Residual ● Best-fit line

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<ul style="list-style-type: none"> Recognize patterns shown in comparison of two sets of data. Construct a two-way table Interpret the data in the two-way table to recognize patterns Use relative frequencies of the data to describe relationships (positive, negative, or no correlation). 		
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving
8.SP.1 8.SP.2 8.SP.3 8.SP.4	Lessons 28, 29, 30, 31	Lessons 28, 29, 30 31

Unit 14: Interpreting Categorical and Quantitative Data

Module 1: Summarize, represent, and interpret data on a single count or measurement variable	
Standards	Mathematical Practices
S-ID.1 <ul style="list-style-type: none"> Represent and analyze data with plots on the real number line (dot plots, histograms, and box plots). 	
S-ID.2 <ul style="list-style-type: none"> Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and 	

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spread (interquartile range, standard deviation) of two or more different data sets.		
S-ID.3 <ul style="list-style-type: none"> Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

Module 2: Summarize represent, and interpret data on two categorical and quantitative variables	
Standards	Mathematical Practices
S-ID.5 <ul style="list-style-type: none"> Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. 	
S-ID.6	

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<ul style="list-style-type: none"> • Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. 		
<p>S-ID.6a</p> <ul style="list-style-type: none"> • Fit a function to the data; use functions fitted to data to solve problems in the context of the data. <i>Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.</i> 		
<p>S-ID.6b</p> <ul style="list-style-type: none"> • Informally assess the fit of a function by plotting and analyzing residuals. 		
<p>S-ID.6c</p> <ul style="list-style-type: none"> • Fit a linear function for a scatter plot that suggests a linear association. 		
Student Learning Target(s)		
Essential Vocabulary		
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving

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Standards		Mathematical Practices
S-ID.7 <ul style="list-style-type: none"> Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. 		
S-ID.8 <ul style="list-style-type: none"> Compute (using technology) and interpret the correlation coefficient of a linear fit. 		
S-ID.9 <ul style="list-style-type: none"> Distinguish between correlation and causation. 		
Student Learning Target(s)		Essential Vocabulary
Supplement Resources Correlation		
MCCRS	Ready Mathematics Instruction	Ready Practice and Problem Solving