

**PROGRAM OVERVIEW**

# Content Map

Lesson	Sub-lesson number	Title	Standard(s)
<b>Unit 1: Relationships Between Quantities and Expressions</b>			
<b>Lesson 1</b>	<b>Working with Radicals and Properties of Real Numbers</b>		
	1.1.1	Working with Radicals and Properties of Real Numbers	MGSE9–12.N.RN.2 MGSE9–12.N.RN.3
<b>Lesson 2</b>	<b>Units of Measure</b>		
	1.2.1	Converting Units	MGSE9–12.N.Q.1★ MGSE9–12.N.Q.2★
	1.2.2	Modeling with Units and Precision in Modeling	MGSE9–12.N.Q.2★ MGSE9–12.N.Q.3★
<b>Lesson 3</b>	<b>Interpreting Formulas and Expressions</b>		
	1.3.1	Identifying Terms, Factors, and Coefficients	MGSE9–12.A.SSE.1★ MGSE9–12.A.SSE.1a★
	1.3.2	Adding and Subtracting Polynomials	MGSE9–12.A.APR.1
	1.3.3	Multiplying Polynomials	MGSE9–12.A.APR.1
	1.3.4	Interpreting Complicated Expressions	MGSE9–12.A.SSE.1★ MGSE9–12.A.SSE.1b★
<b>Unit 2: Reasoning with Linear Equations and Inequalities</b>			
<b>Lesson 1</b>	<b>Creating Linear Equations and Inequalities in One Variable</b>		
	2.1.1	Creating Linear Equations in One Variable	MGSE9–12.A.CED.1★
	2.1.2	Creating Linear Inequalities in One Variable	MGSE9–12.A.CED.1★
<b>Lesson 2</b>	<b>Creating and Graphing Linear Equations in Two Variables</b>		
	2.2.1	Creating and Graphing Linear Equations in Two Variables	MGSE9–12.A.CED.2★
<b>Lesson 3</b>	<b>Representing Constraints</b>		
	2.3.1	Representing Constraints	MGSE9–12.A.CED.3★
<b>Lesson 4</b>	<b>Solving Linear Equations and Inequalities</b>		
	2.4.1	Properties of Equality	MGSE9–12.A.REI.1
	2.4.2	Solving Linear Equations	MGSE9–12.A.REI.3
	2.4.3	Solving Linear Inequalities	MGSE9–12.A.REI.3

# PROGRAM OVERVIEW

## Content Map

Lesson	Sub-lesson number	Title	Standard(s)
Lesson 5	<b>Rearranging Formulas</b>		
	2.5.1	Rearranging Formulas	MGSE9–12.A.CED.4★
Lesson 6	<b>Functions and Graphing</b>		
	2.6.1	Graphing the Set of All Solutions	MGSE9–12.A.REI.10
	2.6.2	Domain and Range	MGSE9–12.F.IF.1
	2.6.3	Function Notation and Evaluating Functions	MGSE9–12.F.IF.2
Lesson 7	<b>Systems of Linear Equations</b>		
	2.7.1	Intersecting Graphs	MGSE9–12.A.REI.11★
	2.7.2	Solving Systems of Linear Equations by Substitution and Elimination	MGSE9–12.A.REI.5 MGSE9–12.A.REI.6
	2.7.3	Solving Systems of Linear Equations by Graphing	MGSE9–12.A.REI.6
Lesson 8	<b>Two-Variable Linear Inequalities</b>		
	2.8.1	Solving Linear Inequalities in Two Variables	MGSE9–12.A.REI.12
	2.8.2	Solving Systems of Linear Inequalities	MGSE9–12.A.REI.12
Lesson 9	<b>Sequences As Functions</b>		
	2.9.1	Sequences As Functions	MGSE9–12.F.IF.3
	2.9.2	Arithmetic Sequences	MGSE9–12.F.BF.2★
Lesson 10	<b>Interpreting Linear Functions</b>		
	2.10.1	Identifying Key Features of Linear Graphs	MGSE9–12.F.IF.4★ MGSE9–12.F.IF.5★
	2.10.2	Average Rate of Change	MGSE9–12.F.IF.6★
Lesson 11	<b>Analyzing and Comparing Linear Functions</b>		
	2.11.1	Graphing Linear Functions	MGSE9–12.F.IF.7★ MGSE9–12.F.IF.7a★
	2.11.2	Comparing Linear Functions	MGSE9–12.F.IF.9
Lesson 12	<b>Building Linear Functions</b>		
	2.12.1	Building Functions From Context	MGSE9–12.F.BF.1★ MGSE9–12.F.BF.1a★

# PROGRAM OVERVIEW

## Content Map

Lesson	Sub-lesson number	Title	Standard(s)
<b>Unit 3: Modeling and Analyzing Quadratic Functions</b>			
<b>Lesson 1</b>	<b>Creating and Solving Quadratic Equations in One Variable</b>		
	3.1.1	Taking the Square Root of Both Sides	MGSE9–12.A.CED.1★ MGSE9–12.A.REI.4 MGSE9–12.A.REI.4b
	3.1.2	Factoring	MGSE9–12.A.SSE.2 MGSE9–12.A.CED.1★ MGSE9–12.A.REI.4 MGSE9–12.A.REI.4b
	3.1.3	Completing the Square	MGSE9–12.A.SSE.2 MGSE9–12.A.CED.1★ MGSE9–12.A.REI.4 MGSE9–12.A.REI.4a MGSE9–12.A.REI.4b
	3.1.4	Applying the Quadratic Formula	MGSE9–12.A.CED.1★ MGSE9–12.A.REI.4 MGSE9–12.A.REI.4a MGSE9–12.A.REI.4b
	3.1.5	Solving Quadratic Inequalities	MGSE9–12.A.SSE.2 MGSE9–12.A.CED.1★ MGSE9–12.A.REI.4 MGSE9–12.A.REI.4b
<b>Lesson 2</b>	<b>Creating Quadratic Equations in Two or More Variables</b>		
	3.2.1	Creating and Graphing Equations Using Standard Form	MGSE9–12.A.CED.2★ MGSE9–12.A.SSE.3★ MGSE9–12.A.SSE.3a★ MGSE9–12.F.IF.7★ MGSE9–12.F.IF.7a★
	3.2.2	Creating and Graphing Equations Using the $x$ -intercepts	MGSE9–12.A.CED.2★ MGSE9–12.A.SSE.3★ MGSE9–12.A.SSE.3a★ MGSE9–12.F.IF.7★ MGSE9–12.F.IF.7a★

# PROGRAM OVERVIEW

## Content Map

Lesson	Sub-lesson number	Title	Standard(s)
Lesson 2 (cont.)	3.2.3	Creating and Graphing Equations Using Vertex Form	MGSE9–12.A.CED.2★ MGSE9–12.A.SSE.3★ MGSE9–12.A.SSE.3b★ MGSE9–12.F.IF.7★ MGSE9–12.F.IF.7a★
	3.2.4	Rearranging Formulas Revisited	MGSE9–12.A.CED.4★
Lesson 3	<b>Interpreting and Analyzing Quadratic Functions</b>		
	3.3.1	Interpreting Key Features of Quadratic Functions	MGSE9–12.F.IF.4★ MGSE9–12.F.IF.7★ MGSE9–12.F.IF.7a★
	3.3.2	Identifying the Domain of a Quadratic Function	MGSE9–12.F.IF.5★ MGSE9–12.F.IF.1 MGSE9–12.F.IF.2
	3.3.3	Identifying the Average Rate of Change	MGSE9–12.F.IF.6★
	3.3.4	Writing Equivalent Forms of Quadratic Functions	MGSE9–12.F.IF.8 MGSE9–12.F.IF.8a
Lesson 4	<b>Transforming Functions</b>		
	3.4.1	Replacing $f(x)$ with $f(x) + k$ and $f(x + k)$	MGSE9–12.F.BF.3 MGSE9–12.F.IF.1 MGSE9–12.F.IF.2
	3.4.2	Replacing $f(x)$ with $k \cdot f(x)$ and $f(k \cdot x)$	MGSE9–12.F.BF.3 MGSE9–12.F.IF.1 MGSE9–12.F.IF.2
Lesson 5	<b>Building and Comparing Quadratic Functions</b>		
	3.5.1	Building Quadratic Functions from Context	MGSE9–12.F.BF.1★
3.5.2	Comparing Properties of Quadratic Functions Given in Different Forms	MGSE9–12.F.IF.9	
<b>Unit 4: Modeling and Analyzing Exponential Functions</b>			
Lesson 1	<b>Creating Exponential Equations</b>		
	4.1.1	Creating Exponential Equations in One Variable	MGSE9–12.A.CED.1★
4.1.2	Creating and Graphing Exponential Equations in Two Variables	MGSE9–12.A.CED.2★	
Lesson 2	<b>Domain and Range of Exponential Functions</b>		
	4.2.1	Domain and Range of Exponential Functions	MGSE9–12.F.IF.1 MGSE9–12.F.IF.2

# PROGRAM OVERVIEW

## Content Map

Lesson	Sub-lesson number	Title	Standard(s)
Lesson 3	<b>Geometric Sequences</b>		
	4.3.1	Geometric Sequences	MGSE9–12.F.BF.2★ MGSE9–12.F.IF.3
Lesson 4	<b>Interpreting Exponential Graphs</b>		
	4.4.1	Identifying Key Features of Exponential Graphs	MGSE9–12.F.IF.4★ MGSE9–12.F.IF.5★
	4.4.2	Average Rate of Change	MGSE9–12.F.IF.6★
Lesson 5	<b>Graphing Exponential Functions</b>		
	4.5.1	Graphing Exponential Functions	MGSE9–12.F.IF.7★ MGSE9–12.F.IF.7e★
Lesson 6	<b>Comparing Exponential Functions</b>		
	4.6.1	Comparing Exponential Functions	MGSE9–12.F.IF.9
Lesson 7	<b>Building Functions From Context</b>		
	4.7.1	Building Functions From Context	MGSE9–12.F.BF.1a★
Lesson 8	<b>Transformations of Exponential Functions</b>		
	4.8.1	Translating Exponential Functions	MGSE9–12.F.BF.3
	4.8.2	Compressing, Stretching, and Reflecting Exponential Functions	MGSE9–12.F.BF.3
<b>Unit 5: Comparing and Contrasting Functions</b>			
Lesson 1	<b>Key Features of Functions</b>		
	5.1.1	Comparing Key Features of Different Functions	MGSE9–12.F.IF.1 MGSE9–12.F.IF.4★
	5.1.2	Graphing Different Functions Using Key Features	MGSE9–12.F.IF.4★ MGSE9–12.F.IF.7★
Lesson 2	<b>Average Rate of Change</b>		
	5.2.1	Patterns of Change for Different Functions	MGSE9–12.F.LE.1★ MGSE9–12.F.LE.1a★ MGSE9–12.F.LE.1b★ MGSE9–12.F.LE.1c★ MGSE9–12.F.IF.2
	5.2.2	Average Rate of Change on a Graph	MGSE9–12.F.IF.6★ MGSE9–12.F.IF.7★
	5.2.3	Comparing Functions Using Average Rate of Change	MGSE9–12.F.LE.3★ MGSE9–12.F.IF.2

# PROGRAM OVERVIEW

## Content Map

Lesson	Sub-lesson number	Title	Standard(s)
<b>Lesson 3</b>	<b>Function Transformations</b>		
	5.3.1	Translation	MGSE9–12.F.BF.3 MGSE9–12.F.IF.2
	5.3.2	Dilation and Reflection	MGSE9–12.F.BF.3 MGSE9–12.F.IF.2
	5.3.3	Even and Odd Functions	MGSE9–12.F.BF.3 MGSE9–12.F.IF.2
<b>Lesson 4</b>	<b>Modeling with Functions</b>		
	5.4.1	Choosing a Model	MGSE9–12.F.LE.1★ MGSE9–12.F.LE.2★ MGSE9–12.F.LE.5★
	5.4.2	Using a Model in Context	MGSE9–12.F.LE.5★ MGSE9–12.F.IF.5★
	5.4.3	Comparing Models	MGSE9–12.F.IF.9
<b>Unit 6: Describing Data</b>			
<b>Lesson 1</b>	<b>Summarizing, Representing, and Interpreting Data on a Single Measurement Variable</b>		
	6.1.1	Representing Data Visually	MGSE9–12.S.ID.1★
	6.1.2	Comparing Different Data Sets	MGSE9–12.S.ID.2★
	6.1.3	Interpreting Data and Recognizing Outliers	MGSE9–12.S.ID.3★
<b>Lesson 2</b>	<b>Working with Two Categorical and Quantitative Variables</b>		
	6.2.1	Summarizing Data Using Two-Way Frequency Tables	MGSE9–12.S.ID.5★
	6.2.2	Solving Problems Given Functions Fitted to Data	MGSE9–12.S.ID.6★ MGSE9–12.S.ID.6a★
	6.2.3	Fitting Linear Functions to Data	MGSE9–12.S.ID.6★ MGSE9–12.S.ID.6c★
<b>Lesson 3</b>	<b>Interpreting Linear Models</b>		
	6.3.1	Interpreting Slope and $y$ -intercept	MGSE9–12.S.ID.7★
	6.3.2	Calculating and Interpreting the Correlation Coefficient	MGSE9–12.S.ID.8★
	6.3.3	Distinguishing Between Correlation and Causation	MGSE9–12.S.ID.9★