GSE ALGEBRA II CONTENT MAP

Unit 1: Quadratics Revisited			
Lesson	**Sub-lesson**	**Title**	**Standard(s)**
Lesson 1	**Working With the Number System**		
	1.1.1	Defining, Rewriting, and Evaluating Rational Exponents	MGSE9–12.N.RN.1
	1.1.2	Rational and Irrational Numbers and Their Properties	MGSE9–12.N.RN.2
Lesson 2	**Operating With Complex Numbers**		
	1.2.1	Defining Complex Numbers, i and i^2	MGSE9–12.N.CN.1
	1.2.2	Adding and Subtracting Complex Numbers	MGSE9–12.N.CN.2
	1.2.3	Multiplying Complex Numbers	MGSE9–12.N.CN.2
			MGSE9–12.N.CN.3
Lesson 3	**Fundamental Theorem of Algebra**		
	1.3.1	Extending Polynomial Identities to Include Complex Numbers	MGSE9–12.N.CN.8
	1.3.2	Solving Quadratic Equations With Complex Solutions	MGSE9–12.N.CN.7
			MGSE9–12.A.REI.4
			MGSE9–12.A.REI.4b

Unit 2: Operations with Polynomials			
Lesson	**Sub-lesson**	**Title**	**Standard(s)**
Lesson 1	**Polynomial Structures and Operating with Polynomials**		
	2.1.1	Structures of Expressions	MGSE9–12.A.APR.1
	2.1.2	Adding and Subtracting Polynomials	MGSE9–12.A.APR.1
	2.1.3	Multiplying Polynomials	MGSE9–12.A.APR.1
	2.1.4	The Binomial Theorem	MGSE9–12.A.APR.5
Lesson 2	**Functions and Modeling**		
	2.2.1	Building Functions From Context	MGSE9–12.F.BF.1★
	2.2.2	Operating on Functions	MGSE9–12.F.BF.1b★
	2.2.3	Composition of Functions	MGSE9–12.F.BF.1c★
Lesson 3	**Inverse Functions**		
	2.3.1	Finding Inverse Functions	MGSE9–12.F.BF.4a
			MGSE9–12.F.BF.4b
			MGSE9–12.F.BF.4c
	2.3.2	Determining Inverses of Quadratic Functions	MGSE9–12.F.BF.4
	2.3.3	Determining Inverses of Other Functions	MGSE9–12.F.BF.4

Unit 3: Polynomial Functions			
Lesson	**Sub-lesson**	**Title**	**Standard(s)**
Lesson 1	**Polynomial Identities**		
	3.1.1	Introduction to Polynomial Identities	MGSE9–12.A.SSE.1a★
			MGSE9–12.A.SSE.1b★
			MGSSE9–12.A.SSE.2
			MGSE9–12.A.APR.4
	3.1.2	Complex Polynomial Identities	MGSE9–12.N.CN.8
			MGSE9–12.A.SSE.1b★
			MGSSE9–12.A.SSE.2
			MGSE9–12.A.APR.4
Lesson 2	**Graphing Polynomial Functions**		
	3.2.1	Describing End Behavior and Turns	MGSE9–12.F.IF.7★
	3.2.2	The Remainder Theorem	MGSE9-12.A.APR.2
	3.2.3	Finding Zeroes	MGSE9–12.A.APR.3
			MGSE9–12.N.CN.9
			MGSE9–12.F.IF.7★
	3.2.4	The Rational Root Theorem	MGSE9–12.A.APR.3

Unit 4: Rational and Radical Relationships			
Lesson	**Sub-lesson**	**Title**	**Standard(s)**
Lesson 1	**Operating with Rational Expressions**		
	4.1.1	Structures of Rational Expressions	MGSE9–12.A.APR.7
			MGSE9–12.A.SSE.1a★
			MGSE9–12.A.SSE.1b★
			MGSSE9–12.A.SSE.2
	4.1.2	Adding and Subtracting Rational Expressions	MGSE9–12.A.APR.7
	4.1.3	Multiplying Rational Expressions	MGSE9–12.A.APR.7
	4.1.4	Dividing Rational Expressions	MGSE9–12.A.APR.7
Lesson 2	**Solving Rational and Radical Equations**		
	4.2.1	Solving Rational Equations	MGSE9–12.A.REI.2
			MGSE9–12.A.CED.1★
			MGSE9–12.A.CED.2★
	4.2.2	Solving Radical Equations	MGSE9–12.A.REI.2
	4.2.3	Solving Systems of Equations	MGSE9–12.A.REI.11★
			MGSE9–12.F.IF.4★
			MGSE9–12.F.IF.5★
			MGSE9–12.F.IF.7★
			MGSE9–12.F.IF.7b★
			MGSE9–12.F.IF.7d★

Unit 5: Exponential and Logarithmic Functions			
Lesson	**Sub-lesson**	**Title**	**Standard(s)**
Lesson 1	**Analyzing Functions**		
	5.1.1	Analyzing Exponential Functions	MGSE9–12.A.SSE.3c★
			MGSE9–12.F.IF.7e★
			MGSE9–12.F.IF.8b
	5.1.2	Comparing Properties of Functions Given In Different Forms	MGSE9–12.F.IF.7★
			MGSE9–12.F.IF.7e★
			MGSE9–12.F.IF.8
			MGSE9–12.F.IF.8b
Lesson 2	**Modeling Logarithmic Functions**		
	5.2.1	Logarithmic Functions as Inverses	MGSE9–12.F.BF.5
			MGSE9–12.F.LE.4★
	5.2.2	Common Logarithms	MGSE9–12.F.IF.8
			MGSE9–12.F.LE.4★
	5.2.3	Natural Logarithms	MGSE9–12.F.IF.8
			MGSE9–12.F.LE.4★
	5.2.4	Graphing Logarithmic Functions	MGSE9–12.F.IF.7★
	5.2.5	Interpreting Logarithmic Models	MGSE9–12.F.IF.4★
			MGSE9–12.F.IF.5★

Unit 6: Mathematical Modeling			
Lesson	**Sub-lesson**	**Title**	**Standard(s)**
Lesson 1	**Creating Equations**		
	6.1.1	Creating Equations in One Variable	MGSE9–12.A.CED.1★
	6.1.2	Representing and Interpreting Constraints	MGSE9–12.A.CED.3★
	6.1.3	Rearranging Formulas	MGSE9–12.A.CED.4★
Lesson 2	**Transforming a Model and Combining Functions**		
	6.2.1	Transformations of Parent Functions	MGSE9–12.F.BF.3
	6.2.2	Recognizing Odd and Even Functions	MGSE9–12.F.BF.3
	6.2.3	Combining Functions	MGSE9–12.F.BF.1b★
Lesson 3	**Comparing Properties Within and Between Functions**		
	6.3.1	Reading and Identifying Key Features of Real-World Situation Graphs	MGSE9–12.F.IF.4★
			MGSE9–12.F.IF.5★
			MGSE9–12.F.IF.6★
	6.3.2	Calculating Average Rates of Change	MGSE9–12.F.IF.6★
	6.3.3	Comparing Functions	MGSE9–12.F.IF.6★
			MGSE9–12.F.IF.9

Lesson 4	**Choosing a Model**		
	6.4.1	Linear, Exponential, and Quadratic Functions	MGSE9–12.A.CED.2★
			MGSE9–12.F.IF.4★
			MGSE9–12.F.IF.5★
			MGSE9–12.F.BF.3
	6.4.2	Piecewise, Step, and Absolute Value Functions	MGSE9–12.F.IF.4★
			MGSE9–12.F.IF.5★
			MGSE9–12.F.IF.7★
			MGSE9–12.F.BF.3
	6.4.3	Square Root and Cube Root Functions	MGSE9–12.F.IF.4★
			MGSE9–12.F.IF.5★
			MGSE9–12.F.IF.7★
			MGSE9–12.F.BF.3
Lesson 5	**Solving Systems of Equations**		
	6.5.1	Solving Systems of Equations Graphically	MGSE9–12.A.REI.11★
Lesson 6	**Geometric Series**		
	6.6.1	Geometric Sequences	MGSE9–12.A.SSE.4★
	6.6.2	Sum of a Finite Geometric Series	MGSE9–12.A.SSE.4★

Unit 7: Inferences and Conclusions from Data

Lesson	Sub-lesson	Title	Standard(s)
Lesson 1	**Working With a Single Measurement Variable**		
	7.1.1	Representing Data Sets	MGSE9–12.S.ID.1★
	7.1.2	Comparing Data Sets	MGSE9–12.S.ID.2★
	7.1.3	Interpreting Data Sets	MGSE9–12.S.ID.3★
Lesson 2	**Using the Normal Curve**		
	7.2.1	Normal Distributions and the 68–95–99.7 Rule	MGSE9–12.S.ID.4★
	7.2.2	Standard Normal Calculations	MGSE9–12.S.ID.4★
	7.2.3	Assessing Normality	MGSE9–12.S.ID.4★
Lesson 3	**Populations Versus Random Samples and Random Sampling**		
	7.3.1	Differences Between Populations and Samples	MGSE9–12.S.IC.1★
	7.3.2	Simple Random Sampling	MGSE9–12.S.IC.2★
	7.3.3	Other Methods of Random Sampling	MGSE9–12.S.IC.2★
Lesson 4	**Surveys, Experiments, and Observational Studies**		
	7.4.1	Identifying Surveys, Experiments, and Observational Studies	MGSE9–12.S.IC.3★
	7.4.2	Designing Surveys, Experiments, and Observational Studies	MGSE9–12.S.IC.3★

Lesson 5	**Estimating Sample Proportions and Sample Means**		
	7.5.1	Estimating Sample Proportions	MGSE9–12.S.IC.4★
	7.5.2	The Binomial Distribution	MGSE9–12.S.IC.4★
	7.5.3	Estimating Sample Means	MGSE9–12.S.IC.4★
	7.5.4	Estimating With Confidence	MGSE9–12.S.IC.4★
Lesson 6	**Comparing Treatments and Reading Reports**		
	7.6.1	Evaluating Treatments	MGSE9–12.S.IC.5★
	7.6.2	Designing and Simulating Treatments	MGSE9–12.S.IC.5★
	7.6.3	Reading Reports	MGSE9–12.S.IC.6★