

## GSE GEOMETRY CONTENT MAP

### Unit 1: Transformations in the Coordinate Plane

Lesson	Sub-lesson	Title	Standard(s)
Lesson 1	<b>Introducing Transformations</b>		
	1.1.1	Defining Terms	MGSE9-12.G.CO.1
	1.1.2	Transformations as Functions	MGSE9-12.G.CO.2
	1.1.3	Applying Lines of Symmetry	MGSE9-12.G.CO.3
Lesson 2	<b>Rotations, Reflections, and Translations</b>		
	1.2.1	Defining Rotations, Reflections, and Translations	MGSE9-12.G.CO.4
	1.2.2	Applying Rotations, Reflections, and Translations	MGSE9-12.G.CO.5

### Unit 2: Similarity, Congruence, and Proof

Lesson	Sub-lesson	Title	Standard(s)
Lesson 1	<b>Investigating Properties of Dilations</b>		
	2.1.1	Investigating Properties of Parallelism and the Center	MGSE9-12.G.SRT.1a
	2.1.2	Investigating Scale Factors	MGSE9-12.G.SRT.1b
Lesson 2	<b>Defining and Applying Similarity</b>		
	2.2.1	Defining Similarity	MGSE9-12.G.SRT.2
	2.2.2	Applying Similarity Using the Angle-Angle (AA) Criterion	MGSE9-12.G.SRT.3
Lesson 3	<b>Proving Similarity</b>		
	2.3.1	Proving Triangle Similarity Using Side-Angle-Side (SAS) and Side-Side-Side (SSS) Similarity	MGSE9-12.G.SRT.4
	2.3.2	Working with Ratio Segments	MGSE9-12.G.SRT.4
	2.3.3	Proving the Pythagorean Theorem Using Similarity	MGSE9-12.G.SRT.4
	2.3.4	Solving Problems Using Similarity and Congruence	MGSE9-12.G.SRT.5
Lesson 4	<b>Exploring Congruence</b>		
	2.4.1	Describing Rigid Motions and Predicting the Effects	MGSE9-12.G.CO.6
	2.4.2	Defining Congruence in Terms of Rigid Motions	MGSE9-12.G.CO.6
Lesson 5	<b>Congruent Triangles</b>		
	2.5.1	Triangle Congruency	MGSE9-12.G.CO.7
	2.5.2	Explaining ASA, SAS, SSS, AAS, and HL	MGSE9-12.G.CO.8
<b>Proving Theorems About Lines and Angles</b>			

<b>Lesson 6</b>	2.6.1	Proving the Vertical Angles Theorem	MGSE9-12.G.CO.9
	2.6.2	Proving Theorems About Angles in Parallel Lines Cut by a Transversal	MGSE9-12.G.CO.9
<b>Lesson 7</b>	<b>Proving Theorems About Triangles</b>		
	2.7.1	Proving the Interior Angle Sum Theorem	MGSE9-12.G.CO.10
	2.7.2	Proving Theorems About Isosceles Triangles	MGSE9-12.G.CO.10
	2.7.3	Proving the Midsegment of a Triangle	MGSE9-12.G.CO.10
	2.7.4	Proving Centers of Triangles	MGSE9-12.G.CO.10
<b>Lesson 8</b>	<b>Proving Theorems About Parallelograms</b>		
	2.8.1	Proving Properties of Parallelograms	MGSE9-12.G.CO.11
	2.8.2	Proving Properties of Special Quadrilaterals	MGSE9-12.G.CO.11
<b>Lesson 9</b>	<b>Constructing Lines, Segments, and Angles</b>		
	2.9.1	Copying Segments and Angles	MGSE9-12.G.CO.12
	2.9.2	Bisecting Segments and Angles	MGSE9-12.G.CO.12
	2.9.3	Constructing Perpendicular and Parallel Lines	MGSE9-12.G.CO.12
<b>Lesson 10</b>	<b>Constructing Polygons</b>		
	2.10.1	Constructing Equilateral Triangles Inscribed in Circles	MGSE9-12.G.CO.13
	2.10.2	Constructing Squares Inscribed in Circles	MGSE9-12.G.CO.13
	2.10.3	Constructing Regular Hexagons Inscribed in Circles	MGSE9-12.G.CO.13
<b>Unit 3: Right Triangle Trigonometry</b>			
<b>Lesson</b>	<b>Sub-lesson</b>	<b>Title</b>	<b>Standard(s)</b>
<b>Lesson 1</b>	<b>Exploring Trigonometric Ratios</b>		
	3.1.1	Defining Trigonometric Ratios	MGSE9-12.G.SRT.6
	3.1.2	Exploring Sine and Cosine As Complementary Angles	MGSE9-12.G.SRT.7
<b>Lesson 2</b>	<b>Applying Trigonometric Ratios</b>		
	3.2.1	Calculating Sine, Cosine, and Tangent	MGSE9-12.G.SRT.8
	3.2.2	Calculating Cosecant, Secant, and Cotangent	MGSE9-12.G.SRT.8
	3.2.3	Problem Solving with the Pythagorean Theorem and Trigonometry	MGSE9-12.G.SRT.8
<b>Unit 4: Circles and Volume</b>			
<b>Lesson</b>	<b>Sub-lesson</b>	<b>Title</b>	<b>Standard(s)</b>
<b>Lesson 1</b>	<b>Introducing Circles</b>		
	4.1.1	Similar Circles and Central and Inscribed Angles	MGSE9-12.G.C.1 MGSE9-12.G.C.2
	4.1.2	Chord Central Angles Conjecture	MGSE9-12.G.C.2

	4.1.3	Properties of Tangents of a Circle	MGSE9-12.G.C.2
Lesson 2	<b>Inscribed Polygons and Circumscribed Triangles</b>		
	4.2.1	Constructing Inscribed Circles	MGSE9-12.G.C.3
	4.2.2	Constructing Circumscribed Circles	MGSE9-12.G.C.3
	4.2.3	Proving Properties of Inscribed Quadrilaterals	MGSE9-12.G.C.3
Lesson 3	<b>Constructing Tangent Lines</b>		
	4.3.1	Constructing Tangent Lines	MGSE9-12.G.C.4
Lesson 4	<b>Finding Arc Lengths and Areas of Sectors</b>		
	4.4.1	Defining Radians	MGSE9-12.G.C.5
	4.4.2	Deriving the Formula for the Area of a Sector	MGSE9-12.G.C.5
Lesson 5	<b>Explaining and Applying Area and Volume Formulas</b>		
	4.5.1	Circumference and Area of a Circle	MGSE9-12.G.GMD.1a
	4.5.2	Volumes of Cylinders, Pyramids, Cones, and Spheres	MGSE9-12.G.GMD.1b MGSE9-12.G.GMD.2
Lesson 6	<b>Relationships Between Two- and Three-Dimensional Objects</b>		
	4.6.1	Cross Sections and Rotated Shapes	MGSE9-12.G.GMD.4 MGSE9-12.G.MG.1★
<b>Unit 5: Geometric and Algebraic Connections</b>			
Lesson	Sub-lesson	Title	Standard(s)
Lesson 1	<b>The Equation of a Circle</b>		
	5.1.1	Deriving the Equation of a Circle	MGSE9-12.G.GPE.1
	5.1.2	Using Coordinates to Prove Geometric Theorems About Circles	MGSE9-12.G.GPE.4
Lesson 2	<b>Slope and Distance</b>		
	5.2.1	Using Coordinates to Prove Geometric Theorems with Slope and Distance	MGSE9-12.G.GPE.4 MGSE9-12.G.GPE.5
	5.2.2	Working with Parallel and Perpendicular	MGSE9-12.G.GPE.5
Lesson 3	<b>Lines and Line Segments</b>		
	5.3.1	Calculating Perimeter and Area	MGSE9-12.G.GPE.7★
	5.3.2	Midpoints and Other Points on Line Segments	MGSE9-12.G.GPE.6
Lesson 4	<b>Geometric Modeling</b>		
	5.4.2	Density	MGSE9-12.G.MG.2★
	5.4.3	Design	MGSE9-12.G.MG.1★ MGSE9-12.G.MG.3★
<b>Unit 6: Applications of Probability</b>			

Lesson	Sub-lesson	Title	Standard(s)
<b>Lesson 1</b>	<b>Events</b>		
	6.1.1	Describing Events	MGSE9-12.S-CP.1★
	6.1.2	The Addition Rule	MGSE9-12.S-CP.7★
	6.1.3	Understanding Independent Events	MGSE9-12.S-CP.2★
<b>Lesson 2</b>	<b>Conditional Probability</b>		
	6.2.1	Introducing Conditional Probability	MGSE9-12.S-CP.3★
			MGSE9-12.S-CP.5★
			MGSE9-12.S-CP.6★
6.2.2	Using Two-Way Frequency Tables	MGSE9-12.S-CP.4★	
			MGSE9-12.S-CP.5★
			MGSE9-12.S-CP.6★