

# Georgia's K-12 Mathematics Standards 2021 Geometry: Concepts and Connections

## Unit 1: Transformations and Congruence

Topic	Lesson	Title	Standard(s)
<b>Topic A</b>	<b>Identifying Terms, Factors, and Coefficients</b>		
	1.1	Identifying Terms, Factors, and Coefficients	G.PAR.2.1
<b>Topic B</b>	<b>Working with Polynomials</b>		
	1.2	Adding and Subtracting Polynomials	G.PAR.2.2 G.PAR.2.3
	1.3	Multiplying Polynomials	G.PAR.2.2 G.PAR.2.3
<b>Topic C</b>	<b>Introducing Transformations</b>		
	1.4	Transformations as Functions	G.GSR.3.1
	1.5	Applying Lines of Symmetry	G.GSR.3.1
<b>Topic D</b>	<b>Rotations, Reflections, and Translations</b>		
	1.6	Defining Rotations, Reflections, and Translations	G.GSR.3.1
	1.7	Applying Rotations, Reflections, and Translations	G.GSR.3.2
<b>Topic E</b>	<b>Exploring Congruence</b>		
	1.8	Describing Rigid Motions and Predicting the Effects	G.GSR.3.2 G.GSR.3.3
	1.9	Defining Congruence in Terms of Rigid Motions	G.GSR.3.2 G.GSR.3.3
<b>Topic F</b>	<b>Congruent Triangles</b>		
	1.10	Triangle Congruency	G.GSR.3.4
	1.11	Triangle Congruence Criteria	G.GSR.3.4

## Unit 2: Lines, Angles, Constructions, and Proofs

Topic	Lesson	Title	Standard(s)
Topic A	<b>Defining Terms</b>		
	2.1	Defining Terms	G.GSR.4.1
Topic B	<b>Proving Theorems about Parallelograms</b>		
	2.2	Proving Properties of Parallelograms	G.GSR.4.2
	2.3	Proving Properties of Special Quadrilaterals	G.GSR.4.2
Topic C	<b>Constructing Lines, Segments, and Angles</b>		
	2.4	Copying Segments and Angles	G.GSR.4.3
	2.5	Bisecting Segments and Angles	G.GSR.4.3
	2.6	Constructing Perpendicular and Parallel Lines	G.GSR.4.3
Topic D	<b>Constructing Polygons</b>		
	2.7	Constructing Equilateral Triangles Inscribed in Circles	G.GSR.4.3
	2.8	Constructing Squares Inscribed in Circles	G.GSR.4.3
	2.9	Constructing Regular Hexagons Inscribed in Circles	G.GSR.4.3
Topic E	<b>Proving Theorems about Lines and Angles</b>		
	2.10	Proving the Vertical Angles Theorem	G.GSR.4.4
	2.11	Proving Theorems About Angles in Parallel Lines Cut by a Transversal	G.GSR.4.4 G.GSR.4.5
Topic F	<b>Proving Theorems about Triangles</b>		
	2.12	Proving the Interior Angle Sum Theorem	G.GSR.4.5
	2.13	Proving Theorems About Isosceles Triangles	G.GSR.4.5
	2.14	Proving the Midsegment of a Triangle	G.GSR.4.5
	2.15	Proving Centers of Triangles	G.GSR.4.5

## Unit 3: Similarity and Triangles

Topic	Lesson	Title	Standard(s)
Topic A	<b>Investigating Properties of Dilations</b>		
	3.1	Investigating Properties of Parallelism and the Center	G.GSR.5.1
	3.2	Investigating Scale Factors	G.GSR.5.1
Topic B	<b>Defining and Applying Similarity</b>		
	3.3	Defining Similarity	G.GSR.5.2
	3.4	Applying Similarity Using the Angle-Angle (AA) Criterion	G.GSR.5.3
Topic C	<b>Proving Similarity</b>		
	3.5	Proving Triangle Similarity Using Side-Angle-Side (SAS) and Side-Side-Side (SSS) Similarity	G.GSR.5.3
	3.6	Working with Ratio Segments	G.GSR.5.4
	3.7	Proving the Pythagorean Theorem Using Similarity	G.GSR.5.4
	3.8	Solving Problems Using Similarity and Congruence	G.GSR.5.4

## Unit 4: Right Triangle Trigonometry

Topic	Lesson	Title	Standard(s)
Topic A	<b>Exploring Trigonometric Ratios</b>		
	4.1	Defining Trigonometric Ratios	G.GSR.6.1
	4.2	Exploring Sine and Cosine As Complements	G.GSR.6.2
Topic B	<b>Applying Trigonometric Ratios</b>		
	4.3	Calculating Sine, Cosine, and Tangent	G.GSR.6.3
	4.4	Calculating Cosecant, Secant, and Cotangent	G.GSR.6.3
	4.5	Problem Solving with the Pythagorean Theorem and Trigonometry	G.GSR.6.3

## Unit 5: Circles and Radians

Topic	Lesson	Title	Standard(s)
Topic A	<b>Introducing Radians</b>		
	5.1	Radians and Circles	G.GSR.7.1 G.GSR.7.2
	5.2	The Unit Circle	G.GSR.7.3
	5.3	Special Angles in the Unit Circle	G.GSR.7.3
Topic B	<b>Introducing Circles</b>		
	5.4	Similar Circles and Central and Inscribed Angles	G.GSR.8.1
	5.5	Chord Central Angles Conjecture	G.GSR.8.1
	5.6	Properties of Tangents of a Circle	G.GSR.8.1
Topic C	<b>Finding Arc Lengths and Areas of Sectors</b>		
	5.7	Circumference and Area of a Circle	G.GSR.8.2
	5.8	Arc Lengths and Sectors	G.GSR.8.2
Topic D	<b>The Equation of a Circle</b>		
	5.9	Deriving the Equation of a Circle	G.GSR.8.3
	5.10	Using Coordinates to Prove Geometric Theorems About Circles	G.GSR.8.3

## Unit 6: Geometric and Algebraic Connections

Topic	Lesson	Title	Standard(s)
Topic A	<b>Cross Sections and Rotated Shapes</b>		
	5.11	Cross Sections and Rotated Shapes	G.GSR.9.1
Topic B	<b>Explaining and Applying Area and Volume Formulas</b>		
	6.1	Volumes of Cylinders, Pyramids, Cones, and Spheres	G.GSR.9.1
Topic C	<b>Geometric Modeling</b>		
	6.2	Density	G.GSR.9.2 G.GSR.9.3
	6.3	Design	G.GSR.9.2 G.GSR.9.3

## Unit 7: Applications of Probability

Topic	Lesson	Title	Standard(s)
Topic A	<b>Events</b>		
	7.1	Describing Events	G.PR.10.1
	7.2	The Addition Rule	G.PR.10.1
	7.3	Understanding Independent Events	G.PR.10.2
Topic B	<b>Conditional Probability</b>		
	7.4	Introducing Conditional Probability	G.PR.10.3
	7.5	Using Two-Way Frequency Tables	G.DSR.11.1 G.DSR.11.2
	7.6	The Multiplication Rule	G.PR.10.2
Topic C	<b>Combinatorics</b>		
	7.7	Combinations and Permutations	G.PR.10.4
	7.8	Probability with Combinatorics	G.PR.10.4
Topic D	<b>Probability Distributions</b>		
	7.9	Expected Value	G.PR.10.5 G.PR.10.7
	7.10	Developing Probability Distributions	G.PR.10.5 G.PR.10.6 G.PR.10.7
	7.11	Using Probability Distributions to Evaluate Outcomes	G.PR.10.8