Geometry A
Poudre School District
Pacing Overview

Chapter 1: Basics of Geometry and Chapter 2: Reasoning and Proofs
9-10 Days
HS.G.CO.A.1, H.G.CO.C.9, HS.G.CO.C.10, HS.G.CO.C.11, HS.G.CO.D.12, HS.G.SRT.B.4, HS.G.GPE.B.7, HS.G.MG.A.1

Chapter 2: Reasoning and Proofs
6 Days
HS.G.CO.C.9, HS.G.CO.C.10, HS.G.CO.C.11, HS.G.SRT.B.4

Chapter 3: Parallel and Perpendicular Lines
9-10 Days
HS.G.CO.A.1, HS.G.CO.C.9, HS.G.CO.D.12, HS.G.GPE.B.5, HS.G.GPE.B.6

Chapter 4: Transformations
9-10 Days
HS.G.CO.A.2, HS.G.CO.A.3, HS.G.CO.A.4, HS.G.CO.A.5, HS.G.CO.B.6, HS.G.SRT.A.1a, HS.G.SRT.A.1b, HS.G.MG.A.3

Chapter 5: Congruent Triangles
9-10 Days
HS.G.CO.B.7, HS.G.CO.B.8, HS.G.CO.C.10, HS.G.CO.D.13, HS.G.MG.A.1, HS.G.MG.A.3

Major Work of the Grade.
Supporting Work of the Grade.
Additional Work of the Grade.

Geometry A
Poudre School District

Chapter 1: Basics of Geometry and Chapter 2: Reasoning and Proofs
9-10 Days
HS.G.CO.A.1, H.G.CO.C.9, HS.G.CO.C.10, HS.G.CO.C.11, HS.G.CO.D.12, HS.G.SRT.B.4, HS.G.GPE.B.7, HS.G.MG.A.1

Chapter Summary				
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing**
	Chapter Opener/Mathematical Practices			
1.1	Points, Lines, and Planes	Learning	HS.G.CO.A.1	1 day
2.3	Postulates and Diagrams	Preparing	HS.G.CO.C.9, HS.G.CO.C.10, HS.G.CO.C.11, HS.G.SRT.B.4	1 day
1.2	Measuring and Constructing Segments	Learning	HS.G.CO.A.1, HS.G.CO.D.12	1 day
1.3	Using Midpoint and Distance Formulas	Learning Preparing	HS.G.CO.D.12, HS.G.GPE.B.7	1 day
1.4	Perimeter and Area in the Coordinate Plane	Learning	HS.G.GPE.B.7, HS.G.MG.A.1	1 day
1.5	Measuring and Constructing Angles	Learning	HS.G.CO.A.1, HS.G.CO.D.12	1 day
1.6	Describing Pairs of Angles	Learning	HS.G.CO.A.1	1 day

Total: 7 days

Note: Additional days reserved for review and assessment.

Geometry A
Poudre School District

Additional Activities/Resources	
Name	**Location**

Vocabulary		
acute angle	adjacent angles	angle
angle bisector	axiom	between
collinear points	complementary angles	congruent angles
congruent segments	construction	coordinate
coplanar points	defined terms	distance
endpoints	exterior of an angle	interior of an angle
intersection	line	line perpendicular to a plane
line segment	linear pair	measure of an angle
midpoint	obtuse angle	opposite rays
plane	point	postulate
ray	right angle	segment
segment bisector	sides of an angle	straight angle
supplementary angles	undefined terms	vertex of an angle
vertical angles		

Standards	
HS.G.CO.A.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
HS.G.CO.C.9	Prove theorems about lines and angles. *Theorems include: vertical angles and congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; point on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
HS.G.CO.C.10	Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
HS.G.CO.C.11	Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*

Standards (continued)	
HS.G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).*Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
HS.G.SRT.B.4	Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem provided using triangle similarity.*
HS.G.GPE.B.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.
HS.G.MG.A.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Geometry A
Poudre School District

Chapter 2: Reasoning and Proofs
6 Days
HS.G.CO.C.9, HS.G.CO.C.10, HS.G.CO.C.11, HS.G.SRT.B.4

Chapter Summary				
Section	Title	Level of Learning	Standard(s)	Pacing
	Chapter Opener/Mathematical Practices			
2.1	Conditional Statements	Preparing	HS.G.CO.C.9, HS.G.CO.C.10, HS.G.CO.C.11, HS.G.SRT.B.4	1 day
2.4	Algebraic Reasoning	Preparing	HS.G.CO.C.9, HS.G.CO.C.10, HS.G.CO.C.11, HS.G.SRT.B.4	1.5 days
2.5	Proving Statements about Segments and Angles	Learning	HS.G.CO.C.9	1.5 days
2.6	Proving Geometric Relationships	Learning	HS.G.CO.C.9	

Total: 4 days

Note: Additional days reserved for review and assessment.

Poudre School District

Additional Activities/Resources	
Name	**Location**

Vocabulary		
biconditional statement	conclusion	conditional statement
contrapositive	converse	equivalent statements
flowchart proof (flow proof)	hypothesis	if-then form
inverse	negation	paragraph proof
perpendicular lines	proof	theorem
truth table	truth value	two column proof

Standards	
HS.G.CO.C.9	Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
HS.G.CO.C.10	Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
HS.G.CO.C.11	Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*
HS.G.SRT.B.4	Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*

Geometry A
Poudre School District

Chapter 3: Parallel and Perpendicular Lines
9-10 Days
HS.G.CO.A.1, HS.G.CO.C.9, HS.G.CO.D.12, HS.G.GPE.B.5, HS.G.GPE.B.6

Chapter Summary				
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing**
	Chapter Opener/Mathematical Practices			
3.1	Pairs of Lines and Angles	Learning	HS.G.CO.A.1	1 day
3.2	Parallel Lines and Transversals	Learning	HS.G.CO.C.9	2 days
3.3	Proofs and Parallel Lines	Learning	HS.G.CO.C.9, HS.G.CO.D.12	2 days
3.5	Equations of Parallel and Perpendicular Lines	Learning	HS.G.GPE.B.5, HS.G.GPE.B.6	2 days

Total: 7 days

Note: Additional days reserved for review and assessment.

Geometry A
Poudre School District

Additional Activities/Resources	
Name	**Location**

Vocabulary		
alternate exterior angles	alternate interior angles	consecutive interior angles
corresponding angles	directed line segment	parallel lines
parallel planes	skew lines	transversal

Standards	
HS.G.CO.A.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
HS.G.CO.C.9	Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
HS.G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).*Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
HS.G.GPE.B.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
HS.G.GPE.B.6	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

Geometry A
Poudre School District

Chapter 4: Transformations
9-10 Days
HS.G.CO.A.2, HS.G.CO.A.3, HS.G.CO.A.4, HS.G.CO.A.5, HS.G.CO.B.6, HS.G.SRT.A.1a, HS.G.SRT.A.1b, HS.G.MG.A.3

Chapter Summary				
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing**
	Chapter Opener/Mathematical Practices			
4.1	Translations	Learning	HS.G.CO.A.2, HS.G.CO.A.4, HS.G.CO.A.5, HS.G.CO.B.6	1 day
4.2	Reflections	Learning	HS.G.CO.A.2, HS.G.CO.A.3, HS.G.CO.A.4, HS.G.CO.A.5, HS.G.CO.B.6, HS.G.MG.A.3	1 day
4.3	Rotations	Learning	HS.G.CO.A.2, HS.G.CO.A.3, HS.G.CO.A.4, HS.G.CO.A.5, HS.G.CO.B.6	1 day
4.4	Congruence and Transformations	Learning	HS.G.CO.A.5, HS.G.CO.B.6	1 day
4.5	Dilations	Learning	HS.G.CO.A.2, HS.G.SRT.A.1a, HS.G.SRT.A.1b	1 day

Total: 5 days

Note: Additional days reserved for technology exploration, review and assessment.

Geometry A
Poudre School District

Additional Activities/Resources	
Name	**Location**

Vocabulary		
angle of rotation	center of dilation	center of rotation
center of symmetry	component form	composition of transformations
congruence transformation	congruent figures	dilation
enlargement	glide reflection	horizontal component
image	initial point	line of reflection
line symmetry	line of symmetry	preimage
reduction	reflection	rigid motion
rotation	rotational symmetry	scale factor
terminal point	transformation	translation
vector	vertical component	

Standards	
HS.G.CO.A.2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
HS.G.CO.A.3	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
HS.G.CO.A.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
HS.G.CO.A.5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
HS.G.CO.B.6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
HS.G.SRT.A.1a	A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.

Standards (continued)	
HS.G.SRT.A.1b	The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
HS.G.MG.A.3	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

Chapter 5: Congruent Triangles
9-10 Days
HS.G.CO.B.7, HS.G.CO.B.8, HS.G.CO.C.10, HS.G.CO.D.13, HS.G.MG.A.1, HS.G.MG.A.3

Chapter Summary				
Section	Title	Level of Learning	Standard(s)	Pacing
	Chapter Opener/Mathematical Practices			
5.1	Angles of Triangles	Learning	HS.G.CO.C.10, HS.G.MG.A.1	1 day
5.2	Congruent Polygons	Learning	HS.G.CO.B.7	1 day
5.3	Proving Triangle Congruence by SAS *Include CPCTC*	Learning	HS.G.CO.B.8, HS.G.MG.A.1	1 day
5.5	Proving Triangle Congruence by SSS *Include CPCTC*	Learning	HS.G.CO.B.8, HS.G.MG.A.1, HS.G.MG.A.3	1 day
5.6	Proving Triangle Congruence by ASA and AAS *Include CPCTC*	Learning	HS.G.CO.B.8	1 day
5.4	Equilateral and Isosceles Triangles	Learning	HS.G.CO.C.10, HS.G.CO.D.13, HS.G.MG.A.1	1 day

Total: 7 days

Note: Additional days reserved for CPCTC, review and assessment.

Geometry A
Poudre School District

Additional Activities/Resources	
Name	**Location**

Vocabulary		
base angles of an isosceles triangle	base of an isosceles triangle	corollary to a theorem
corresponding parts	exterior angles	hypotenuse
interior angles	legs of an isosceles triangle	legs of a right triangle
vertex angle		

Standards	
HS.G.CO.B.7	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
HS.G.CO.B.8	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
HS.G.CO.C.10	Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
HS.G.CO.D.13	Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.
HS.G.MG.A.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
HS.G.MG.A.3	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).