DUSD Essential Standards for Math: Geometry

Arizona Geometry Standards Placemat

***Fluency Standard**

Congruence	**G.G-CO.A.2**	Represent and describe transformations in the plane 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.
	G.G-CO.B.8	Explain how the criteria for triangle congruence (ASA, AAS, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
	G.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.
	G.G-CO.C.10	Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangle 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.
Similarity, Right Triangles, and Trigonometry	**G.G-SRT.B.5***	Use congruence and similarity criteria to prove relationships in geometric figures and solve problems utilizing real-world context.
	G.G-SRT.C.8*	Use trigonometric ratios (including inverse trigonometric ratios) and the Pythagorean Theorem to find unknown measurements in right triangles utilizing real-world context.
Circles	**G.G-C.A.2**	Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.
	G.G-C.B.5	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector. Convert between degrees and radians.

Expressing Geometric Properties with Equations	**G.G-GPE.B.5**	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems, including finding the equation of a line parallel or perpendicular to a given line that passes through a given point.
	G.G-GPE.B.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles.
Geometric Measurement and Dimension	**G.G-GMD.A.3**	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems utilizing real-world context.