**Essential Standards for Geometry**

**\*Basics of Geometry (G-CO) (Congruence)**

* Name points, lines, planes, segments, rays, circles, angles (G.CO.1)
* Find segment lengths (with algebra, distance formula) (G.MG.3)
* Find perimeters, areas, volumes of polygons, solids (using distance/length and triangles) (G.MD.3, G.MG.1, G.MG.2, G.MG.3)

**\*Reasoning and Proofs (G-CO)**

* Use properties of equality to justify steps in solving equations and to find segment lengths and angle measures (G.CO.9)

**\*Parallel and Perpendicular Lines (G-CO)**

* Identify planes, pairs of angles formed by transversals, parallel lines, perpendicular lines (G.MG.3)
* Use properties and theorems of parallel lines (G.MG.3, G.CO.9)
* Write equations of parallel lines and perpendicular lines (G.CO.9)

**\*Transformations (G-CO, G.MG.3)**

* Perform translations, reflections, rotations, dilations, compositions of transformations (G.SRT.1, G.CO.2, G.CO.4)
* Describe and perform congruence transformations and similarity transformations (G.CO.6, G.CO.3, G.CO.5)

**\*Congruent Triangles (G-CO, G.MG.3)**

* Identify and use corresponding parts (G.CO.7)
* Use theorems about the angles of a triangle (triangle angle sum, exterior angles) (G.CO.10)
* Use SAS, SSS, HL, ASA, AAS to prove congruent triangles (G.CO.7, G.CO.8)

**\*Relationships within Triangles (G-CO (Congruence), G.MG.3)**

* Understand and use angle bisectors and perpendicular bisectors to find measures (G.CO.9)
* Use Triangle Midsegment Thm and Triangle Inequality Thm (G.CO.10)

**\*Quadrilaterals and Other Polygons (G-CO, G.MG.3)**

* Find and use interior and exterior angle measures (G.CO.9)
* Use properties of parallelograms, trapezoids (G.CO.3)
* Prove that a quadrilateral is a parallelogram (G.CO.11)

**\*Similarity (G-SRT (Similarity, Right Triangles, Trigonometry), G.MG.3)**

* Use AA, SSS, SAS similarity thms to prove triangles are similar (G.SRT.2, G.SRT.3)
* Use similarity criteria to solve problems about lengths, perimeters, areas (G.SRT.4, G.SRT.5, G.SRT.6)

**\*Right Triangles and Trigonometry (G-SRT, G.MG.3)**

* Use Pyth Thm and the Converse (G.SRT.4)
* Find side lengths and solve real-life problems involving special right triangles (G.SRT.8)
* Find tangent, sine, cosine ratios and use them to solve real-life problems (G.SRT.7, G.SRT.6)

**\*Circles (G-C (Circles), G.MG.3, G.CO.4)**

* Angle and arc measures (F.TF.1)
* Equations of circles (G.CO.4)

**\*Mathematical Practices**

* Make sense of problems & persevere in solving them
* Reason abstractly & quantitatively
* Construct viable arguments and critique reasoning of others
* Model with math
* Use appropriate tools strategically
* Attend to precision
* Look for and make use of structure
* Look for and express patterns