

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