

GEOMETRY Student Learning Targets	Mastery
Big Idea: Reasoning and Proof	
1. I can use inductive and deductive reasoning to develop mathematical arguments. (conditional statement, converse, inverse, truth value, prove false by counterexample)	
2. I can formulate justify and prove conjectures using inductive reasoning (ongoing).	
Big Idea: ➤ Angles and Lines, ➤ Constructions related to angles and lines, ➤ Properties of lines using coordinate geometry.	
3. I can use accepted geometric <u>notation</u> for lines, segments, rays, angles, similarity, congruence.	
4. I can perform basic geometric constructions and describe and justify the procedures used. (copy and bisect angles and segments, construct perpendicular, parallel lines)	
5. I can identify and determine relationships in adjacent, complementary, supplementary, vertical, linear pairs.	
6. I can classify and prove relationships in angle pairs formed by parallel lines and a transversal.	
7. I can prove lines parallel or perpendicular using angle relationships.	
8. I can write an equation of a line perpendicular or a line parallel to a line through a given point.	
9. I can prove lines parallel or perpendicular using slope.	
10. I can verify the classifications of geometric figures using coordinate geometry to find lengths and slopes.	
11. I can find the distance between two given points and find the coordinates of the midpoint. (distance formula).	
12. I can solve problems using visualization and spatial reasoning (ongoing).	
Big Idea: Analyze Triangles	
13. I can prove congruency, similarity of triangles using postulates & theorems.	
14. I can prove the Pythagorean Theorem in multiple ways, find missing sides of right triangles using the Pythagorean Theorem, and determine whether a triangle is a right triangle using the converse of the Pythagorean Theorem.	
15. I can prove and apply theorems involving isosceles triangles.	
16. I can apply triangle inequality theorems.	
17. I can identify medians, altitudes, angle bisectors of a triangle, and the perpendicular bisectors of the sides of a triangle, and justify concurrency theorems.	
I can solve problems using visualization and spatial reasoning (ongoing).	
Big Idea: ➤ Analyze Quadrilaterals, Circles, and Polygons, ➤ Constructions and Coordinate geometry related to quadrilaterals, circles, polygons	
18. I can use examples and counterexamples to classify subsets of quadrilaterals	
19. I can prove properties of quadrilaterals using triangle congruence relationships, postulates, and theorems.	
20. I can derive, justify and use formulas related to regular polygons (number of diagonals, lines of symmetry, angle measures, perimeter and area).	
21. I can define radius, diameter, chord, secant, arc, sector, central angle, inscribed angle, and tangent of a circle, and solve problems using their properties.	
22. I can show the relationship between intercepted arcs and inscribed or central angles, and find their measures.	
23. I can describe spatial relationships using coordinate geometry. a. Graph a circle given the equation of the circle in the form $(x - h)^2 + (y - k)^2 = r^2$, and write the equation given the graph. b. Determine whether points in a set are collinear.	
I can solve problems using visualization and spatial reasoning (ongoing).	

Big Idea: Special Right Triangles, Solve Triangles using Trigonometry	
24. I can solve problems using properties of special right triangles (30-60-90 & 45-45-90).	
25. I can identify the trigonometric relationships of sine, cosine, and tangent with the appropriate ratio of sides of a right triangle.	
26. I can express trigonometric relationships using exact values and approximations.	
27. I can find the angle measure in degrees when given the trigonometric ratio.	
28. I can find the trigonometric ratio given the angle measure in degrees, using a calculator.	
29. I can find unknown measures of right triangles using sine, cosine, and tangent functions and inverse trigonometric functions.	
I can solve problems using visualization and spatial reasoning (ongoing).	
Big Idea: Analyze and Measure Plane and Solid Figures, Geometric Probability	
30. I can find linear and angle measures in real-world situations using appropriate tools or technology.	
31. I can develop surface area and volume formulas for polyhedra, cones, and cylinders.	
32. I can determine perimeter, area, surface area, lateral area, and volume for prisms, cylinders, pyramids, cones, and spheres when given the formulas.	
33. I can calculate or estimate the area of an irregular region.	
34. I can find the length of an arc and the area of a sector when given the angle measure and radius.	
35. I can solve problems involving geometric probability.	
I can solve problems using visualization and spatial reasoning (ongoing).	
Big Idea: Analyze Three Dimensional Figures	
36. I can identify and classify prisms, pyramids, cylinders and cones based on the shape of their base(s).	
37. I can identify three-dimensional objects from different perspectives using nets, cross-sections, and two-dimensional views.	
38. I can describe the symmetries of three-dimensional figures.	
39. I can describe relationships between faces, edges, and vertices of polyhedra.	
I can solve problems using visualization and spatial reasoning (ongoing).	