**Geometry Course Description-**

##### In this level, you and your student will confidently explore lines, angles, area, perimeter, the Pythagorean theorem, and more to achieve a solid grasp of the vocabulary of geometry, practical applications, traditional geometry, and an introduction to trigonometric functions.Points, lines, planes, angles, circles, triangles, quadrilaterals, Pythagorean Theorem, conic sections, proofs and more

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| **Major Concepts and Skills Include:**   * Describing points, lines, rays, line segments, angles, and planes * Calculating the measure of the interior and exterior angles of a regular polygon * Understanding the geometry of a circle, sphere, and ellipse * Understanding and computing volume and surface area of solids * Using the Pythagorean theorem to identify triangle attributes * Applying postulates, theorems, definitions, and properties to geometric proofs | **Additional Concepts and Skills:**   * Using a protractor to construct angles * Using a compass to construct bisectors * Constructing and identifying triangles * Working with algebraic expressions containing radicals * Completing geometric transformations within a Cartesian plane * Understanding basic trigonometric functions |

**Table of Contents**

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| * Points, Lines, Rays and Line Segments * Planes and Sets * Angles * Types of Angles * Parallel and Perpendicular Lines with Midpoints and Bisectors * Supplementary and Complementary Angles * Transversals with Interior and Exterior Angles * Perimeter of a Rectangle, Triangle, Parallelogram, and Trapezoid * Area of a Rectangle, Triangle, Parallelogram, and Trapezoid * Constructing and Identifying Triangles * Regular Polygons * Geometry of a Circle, Sphere, and Ellipse * Inscribed and Circumscribed Figures * Area and Circumference of a Circle * Area of an Ellipse * Latitude and Longitude * Volume of Rectangular Solid and Cylinder | * Volume of Pyramid, Cone, Prism, and Sphere * Surface Area of Solids * Radicals * Pythagorean Theorem * More on Radicals * Special Triangles: (45°-45°-90°) * Special Triangles: (30°-60°-90°) * Axioms and Postulates * Corresponding Parts of Triangles and Remote Interior Angles * Proving Triangles Congruent with SSS and SAS * Proving Triangles Congruent with ASA and AAS * Proving Triangles Congruent with HL, LL, HA, and LA * Proving Triangles Similar with AA and Proportion or Ratio * Transformational Geometry * Trigonometric Functions: Sine, Cosine, and Tangent * Inverse Trigonometric Functions: Secant, Cosecant, and Cotangent * Sin² + Cos² = 1 |