**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
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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
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