

## Course Outline Regents Geometry

### 1. Geometric Relationships

- Lines and Planes
- Prisms, Pyramids, Cylinders, Cones, Spheres, Platonic Solids
- Polygons - Interior and Exterior Angles

### 2. Constructions

- Constructions: Copy, Bisect, Perpendicular, Parallel, Isosceles, Equilateral
- Concurrence of Medians, Altitudes, Angle Bisectors, Perpendicular Bisectors

### 3. Locus

- The Basic Locus Theorems
- Compound Loci

### 4. Informal and Formal Proof

- Logic - Negation, Conjunction, Disjunction, Conditional, Biconditional, Truth
- Related Conditionals -- Converse, Inverse, Contrapositive
- Writing a Proof - Direct Euclidean Proofs
- Writing a Proof - Indirect Euclidean Proofs
- Congruence of Triangles
- Angles and Triangles
- Isosceles Triangle Theorems
- Triangle Inequality Theorems
- Parallel Lines and Angles
- Quadrilaterals
- Mid-Segment (Mid-Line) of a Triangle
- Similarity of Triangles
- Mean Proportional in a Right Triangle
- Pythagorean Theorem and Converse
- Circles: Chords, Secants and Tangents
- Circles: Angles and Arcs
- Circles: Area of Sectors and Segments

### 5. Transformational Geometry

- Symmetry - Line, Plane, Point, Rotational - Intuitive
- Reflections - Line, Point
- Translations
- Dilations and Similarity
- Rotations
- Compositions and Glide Reflections

### 6. Coordinate Geometry

- Slopes and Equations of Lines
- Midpoint of a Line Segment
- Distance Formula
- Direct Analytic Proofs (Coordinate Geometry Proofs)
- Linear - Quadratic Systems
- Circles