

## ***Course Objective Outline***

### ***Geometry***

#### **TIER ONE OBJECTIVES**

##### *Notation, Lines & Angles*

- Use geometric notation
- Define and use correct vocabulary and notation for points, segments, rays, angles and lines
- Define and use correct vocabulary for coplanar, parallel, skew and intersecting lines
- Calculate the length of a line segment in one or two dimensions
  
- Examine and use the angle properties of parallel lines
- Application problems using the angle properties of parallel lines

##### *Right Triangles*

- State and use the pythagorean theorem
- Identify pythagorean triples
- Applications of the pythagorean theorem
  
- Demonstrate and solve problems using the ratios of 30-60-90 triangles
- Demonstrate and solve problems using the ratios of 45-45-90 triangles

##### *Quadrilaterals & Other Polygons*

- Calculate and apply the perimeter, area and diagonal formulas and properties of parallelograms, rectangles, rhombuses, squares and trapezoids
- Calculate and apply the perimeter and area formulas of regular polygons
- Calculate and apply the interior angle sum of regular polygons
- Find the perimeter and area of irregular polygons

##### *Triangles, Circles*

- Calculate the perimeter of a triangle and the circumference of a circle
- Calculate the area of a triangle and circle

## TIER TWO OBJECTIVES

### Solid Geometry

- Find the surface area of a rectangular or cylindrical solid
- Find the surface area of a pyramid or cone
  
- Find the volume of a rectangular or cylindrical solid
- Find the volume of a pyramid or cone
- Applications of area, surface area and volume

### Geometric Reasoning & Problem Solving

- Examine the effect of transformations and scaling on perimeter, area and volume

### Triangles

- Use properties of the interior angles of a triangle
- Use properties of the exterior angles of a triangle
- Know and apply the triangle inequality theorem
- Examine and use the properties of equilateral and isosceles triangles
  
- Show and prove congruence of triangles using ASA, AAS, SSS, and SAS theorems
  
- Show and prove similarity of triangles using AA~, SAS~ and SSS~ theorems
- Application problems involving congruence and similarity of triangles

## **TIER THREE OBEJECTIVES**

### Circles

- Identify radius, diameter, chord, secant, tangent, central angle, inscribed angle
- Calculate the radius, diameter, central angle and inscribed angle
  
- Find the arc length and area of a sector
  
- Use the properties of tangents
- Examine the effects of scale factors

### Solid Geometry

- Find the area of composite figures
- Compute the surface area of composite figures
- Compute the volume of composite figures

### Geometric Reasoning

- Determine the effect of magnitude change on geometric figures
- Use the principle that similar figures have proportional sides and congruent angles
- Examine and explain the relationship the perimeter, area and volume
- Solve multistep problems involving geometric formulas