**Ch. 11 Circles**

**Essential Questions:**

* How do you find the area and circumference of a circle or part of a circle?
* How do circumferences of similar figures compare?
* How can the properties of circles, polygons, lines, and angles be useful when solving geometric problems?
* How can algebra be useful when expressing geometric properties?

**11.1 Parts of a Circle (G-CO.1)**

* I can identify and define segments and lines related to a circle (chord, diameter, radius, secant, tangent, point of tangency).

**11.2 Properties of Tangents (G-C.2 and G-C.4)**

* I can define a tangent to a circle and the point of tangency.
* I can recognize that the radius of a circle is perpendicular to the tangent and use this relationship to solve for the missing measures.
* I can determine whether a line is tangent.

**11.3 Arcs and Central Angles (G-C.2)**

* I can define arc length of a circle and use the correct notation.
* I can calculate the length of an arc using the ratio of the intercepted arc measure and 360$°$ multiplied by the circumference of the circle.
* I can classify an arc as being a semicircle or a major or minor arc.

**11.4 Arcs and Chords (G-C.2)**

* I can determine if the diameter bisects the chord and its arc.
* I can determine the lengths of chords using the Segment Addition Postulate.
* I can explain and identify congruent arcs and perpendicular bisectors.

**11.5 Inscribed Angles and Polygons (G-C.3 and G-C.2)**

* I can define and identify inscribed angles and intercepted arcs of a circle.
* I can describe the relationship between an inscribed angle and the arc it intercepts.
* I can recognize that if a triangle inscribed in a circle is a right triangle, then the hypotenuse is a diameter of the circle.
* I can recognize that if a quadrilateral can be inscribed in a circle, then its opposite angles are supplementary.

**11.6 Properties of Chords (G-C.2)**

* I can apply the properties of chords to determine the missing angle measures.
* I can describe the relationship of two chords that intersect inside a circle.

**11.7 Equations of Circles (G-GPE.1)**

* I can write and graph the equation of a circle.
* I can identify the radius of a circle when in standard form $x^{2}+y^{2}=r^{2}$ and can solve for missing information
* I can write an equation for a circle even if the center is not the origin using the formula $(x-h)^{2}+(y-k)^{2}=r^{2}$ where (*h, k*) is the center.

**11.8 Rotations (G-CO.3)**

* I can explain what a rotation is and determine the degree at which the figure was rotated.
* I can determine if a symmetry is rotational and find the center of rotation.