**Lesson Plan Outline Geometry in Construction**

**Title:**

Prove that all circles are similar

Measurements in Circle

**Objective(s):**

Students will be able to prove that all circles are similar

Students will find the measures of angles in a circle, measures of their arcs, circumference, and their arc length.

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.C.A.2](http://www.corestandards.org/Math/Content/HSG/C/A/2/)

Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*

[*CCSS.MATH.CONTENT.HSG.C.B.5*](http://www.corestandards.org/Math/Content/HSG/C/B/5/)

*Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.*

**Activities:**

Students will compare multiple circles, take measurements, define similarity, and prove that they are similar.

Students will find the length of a curve using a circle rotating around the line; students will use angles of circle and arc length to determine the actual measurement.

**Materials:**

Cardboard

Chalk for curve outline

Classwork: Circles W.S.