**Lesson Plan Outline Geometry in Construction**

**Title:**

Area of a Triangle Using Trigonometry

**Objective(s):**

The students will derive the formula for a triangle (1/2bcsinA) and use it in problem solving situations.

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.SRT.D.9](http://www.corestandards.org/Math/Content/HSG/SRT/D/9/)

(+) Derive the formula *A* = 1/2 *ab* sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

**Activities:**

Students will perform an exploration activity in which they will discover the formula for area of a triangle.

Students will apply the formula to various construction, area, and volume problems; Students will use survey to find the area of plots of land throughout the school.

**Materials:**

Triangle Area Exploration W.S.

Strings, tape measures, and protractor

Triangular roof constructions for insulation activity