**Lesson Plan Outline Geometry in Construction**

**Title:**

Ratio of Size of Similar Right Triangles

Introduction to Trigonometry

**Objective(s):**

The students will explore the side lengths of similar right triangles to see how the ratio of their sides do not change.

The students will look at similar triangles and set up ratios for sine, cosine, and tangent.  Students will explore the relationship between the angle measures and the trigonometric ratios.

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.SRT.C.6](http://www.corestandards.org/Math/Content/HSG/SRT/C/6/)Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

[CCSS.MATH.CONTENT.HSG.SRT.C.7](http://www.corestandards.org/Math/Content/HSG/SRT/C/7/)Explain and use the relationship between the sine and cosine of complementary angles.

**Activities:**

Staircase and ramp construction comparison.  Students will relate each step length and height to the total staircase length and height

Students will use an application on their iPad to explore basic trigonometry concepts

**Materials:**

Multiple staircases; including staircase project from class

iPad with Ezy Trig app

Basic Trigonometry W.S.