**Lesson Plan Outline Geometry in Construction**

**Title:**

Volume of prism, pyramid, cone, cylinder, and sphere

**Objective(s):**

The students will use formulas to calculate the volume of 3D figures in problem solving situations.

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.GMD.A.1](http://www.corestandards.org/Math/Content/HSG/GMD/A/1/)Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments*.

[CCSS.MATH.CONTENT.HSG.GMD.A.3](http://www.corestandards.org/Math/Content/HSG/GMD/A/3/)Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.\*

**Activities:**

Students will calculate the total volume and insulation required for a house.  Students will compare pricings of different insulation.

The students will continue to solve problems involving the formulas for the volume of 3D figures, including finding the volume of shapes constructed of multiple 3D figures (i.e. a cone on top of a cylinder)

The students will be given an object and will be required to design a 3D figure to contain the object.

**Materials:**

House with Framing

Various Spheres (tennis balls, oranges, etc.)

Insulation Activity

Sphere Activity