**Lesson Plan Outline Geometry in Construction**

**Title:**

Surface Area of a Sphere

**Objective(s):**

Students will find the surface area of a sphere.

**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.MG.A.1](http://www.corestandards.org/Math/Content/HSG/MG/A/1/)Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

[CCSS.MATH.CONTENT.HSG.MG.A.3](http://www.corestandards.org/Math/Content/HSG/MG/A/3/)Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems base

**Activities:**

Students will measure the circumference of an orange.   The will then use that to find the radius of the circle.   Student will then create 6 circle on a sheet of paper with the same radius. Once the students have constructed the circles they should peel the orange and fill in the circles with the peels.  (Larger peels work best).   After they are done they should look at other groups, and estimate how many circles should have been filled.

Recall Game Team Building

 *Students will share experiences about themselves with each other; students will try to recall what their classmates said.*

Students will calculate total perimeter & area of various house designs and material costs for fencing, floors, roofing, walls, etc.  Students will create a cost analysis of materials to stay within a budget.

**Materials:**

Oranges or Similar Fruit

Area of a Sphere W.S.

House Cost Analysis