**Course**: Honors Geometry

**Chapter/Section:** 12.1: Exploring Solids

**Date:** April 29th, 2013

**Objective(s):**

1. Explore and find the components for Euler’s Theorem
2. Classify figures as polyhedral
3. Apply Euler’s Theorem
4. **Introduction (5 minutes)**
   1. Explain that we are going into a new chapter: Surface Area and Volume
   2. Using Geometric shapes set, ask students to classify each figure by its name
      1. Octagonal prism
      2. Cone
      3. Sphere
      4. Cylinder
      5. Pyramid
      6. Cube
   3. Transition:
      1. “We are now going to explore different components for some of these figures. Have your notes out on your desk from last night and I will be checking them while you are working.” Thorough
5. **Illuminations Activity (10 minutes)**
   1. Introduce the section by filling in the blanks to the top of the write-up
      1. Students should have the vocabulary already written down from taking notes as previous night’s homework
   2. Instruct students to type in the website provided and to follow the directions in order to complete the activity
   3. Students should each have their chrome books open and working through the write-up. They can work with their partners for questions
   4. If students finish early they can start on the in-class worksheets
   5. Misconceptions
      1. Students may find an incorrect formula for the relationship between number of faces, edges, and vertices
   6. Transition:
      1. Instruct students to finish up and keep the write-up until the end to use on the next worksheet
6. **In-class worksheets (20 minutes)**
   1. Hand out worksheets to each student
   2. Students should work with their partner to complete the two worksheets within the 20 minutes given
   3. Misconceptions
      1. If students did not do the homework, they may not recall the definition of regular or convex
   4. Transition
      1. Have students finish up the problem they are working on and give their attention to the front of the room
7. **Review of in-class worksheets (7 minutes)**
   1. Use second worksheet to review concepts learned
      1. #1-3: Ask students which one is not a polyhedron. Why?
      2. #7-9: What makes a polyhedron regular? Convex?
      3. #18: What do we need to do first? How do we find that? Why is it not 72 edges?
   2. Have students turn in worksheets
      1. If students need extra time to complete worksheets, they can finish for homework and turn in next class
8. **Exit Slip (6 minutes)**
   1. Have students go to EXIT SLIP on website
   2. Project questions onto SMARTBOARD
      1. What classifies a figure as a polyhedron?
      2. What is the relationship between the number of faces, the number of vertices and the number of edges in a polyhedron?
      3. What is the difference between an edge and a vertex?
9. **Homework**
   1. Section 12.1, page 723 #s 10-28 even, 47-52
10. **Materials**
    1. Student chrome books
    2. Activity write-ups
    3. In-class worksheets
    4. SMART BOARD
    5. Exit slip questions
11. **Assessment**
    1. Walk around during activity to monitor their perception of Euler’s Theorem
    2. Analyze their procedural knowledge by collecting their in-class worksheets
    3. Use exit slip to assess content understanding