Are you dense?

**Concept/Topic to teach:** Density

**General Goals:** To have children understand what density is. Also they will learn the formula and how to find density using the formula. The children will also be comparing different objects mentally and understand why some objects float in some liquids but sink in others.

**Specific Objectives:** To be able to understand density. To be able to use the density formula. To be able to understand why objects float and why objects sink.

**Required Materials:** oil, cork, coin, water, grape, honey, clear container, and worksheets.

**Anticipatory Set (Lead-In):** In the lesson, we will be asking if anyone knows what density is or how to find it. After, we will explain to the students what density is and how to find out how dense something is. We will use the splitting of the heart example to help the students understand the formula. Then we will explain to them that size has nothing to do with density. Once the students have grasped the concept of how to find density, we will demonstrate to them how different objects will float in different types of liquids. After the demonstration, we will give the students some worksheets they can work on independently so they can practice working with the formula.

**Step-by-step Procedures:**

Step 1: Fill one third of the bottle with honey
Step 2: Fill the next third with oil.
Step 3: Fill the last third with water.
Step 4: Wait for all three liquids to settle
Step 5: drop in the coin, grape, and cork
All three items (coin, grape, and cork) end up in each of the three different fluids (honey, oil, and water). Each liquid and item have different densities and stay in a separate layer according to its density. The most dense is at the bottom and the least dense is at the top.

**Independent Practice:** A worksheet is created for the students so they can practice the density formula. Also we can give the students some pictures of objects and ask them whether it would sink or float in water.

**Closure (Reflect Anticipatory Set):** We believe that our presentation is easy to understand. It has plenty of information to get the point across to the class, but not too much information where the students would be confused. Also the demonstration went as planned and clearly demonstrated density.

**References:**

- [http://www.zyra.org.uk/denslist.htm](http://www.zyra.org.uk/denslist.htm)
- [http://www.iglooice.co.uk/images/icecube2.jpg](http://www.iglooice.co.uk/images/icecube2.jpg)
- [¡Arkansased.org/educators/curriculum/frameworks.html](http://¡Arkansased.org/educators/curriculum/frameworks.html)