Lesson Plan: Density in Liquids (review)

Big Ideas

- A fluid will rise when placed in a fluid of greater density.

State Standards

- Differentiate between volume and mass. Define density.

SWBAT

- Explain why alcohol will rise to the top of a beaker of water.
- Describe a demonstration that shows a fluid (alcohol) rising in a denser fluid (water).

Materials & Prep Work

Per group: * Beaker of water; * Beaker of alcohol;
* 5 ml weighted Vial of alcohol colored green; * 5 ml weighted Vial of water colored blue;

Prep: Fill and color vials with alcohol and water. Vials must be weighted on the bottom so they will sink to the bottom of the beakers. A washer or large nut provides enough extra weight. Provide beakers of clear alcohol and water at each station. Make sure there is some way to distinguish which is alcohol and which is water. The beakers must be filled enough so that the vials can be placed in and fully submerged.

ACTIVITIES (Italics represent what statements could be made by the teacher to the class)

DISCUSSION: Review of density: What is density? Time: 10-15 min

Opening Tasks/Questions	IN GROUPS: *Working as a group, take a couple of minutes to determine a demonstration or activity that could be used to help teach the concept of density.*
Follow up	WHOLE CLASS: Share and summarize group results.
Leading Questions	What happens if you are canoeing and you tip over? Which is bigger, a pound of gold or a pound of feathers? What material would work best in the bottom of a childrens' plastic basket ball net?
Closing Tasks	Write down a definition of density. Have students write it in their x-books.
Comments	Even though this is review, several students will struggle with the density concept.

Exploration: Do alcohol & water mix**?** Time: 25-40 min

Opening Tasks/Questions	*In front of you are beakers of alcohol & water. You also have a small vial of alcohol colored green and a small vial of water colored blue. These vials will sink if you place them into a liquid. Take some time now to learn what you can about alcohol and water with these items. I have refills if you need them*.
Follow up	Some, if not all groups will discover that the alcohol will rise out of the small vial when placed in water
Leading Questions	Does Heat get used up? Where does it go?
Closing Tasks	Move on to Exploration.
Comments:	Students will already have some knowledge from previous units and discussions.

Homework: Density problems from text book.

Assessment

* Ongoing formative assessment by teacher observing/questioning students as they work in groups.

* Summative assessment for density will occur following later activities.