SCIS Hogwarts - Potions Density Experiment

Worksheet

**Objectives**:

* Observe that different liquids have different densities
* Apply problem solving skills in order to hypothesize where the a seventh liquid will fall in the density column

**Materials**: Part I

* Vegetable oil
* Dishwashing liquid
* Dark Karo syrup
* Water
* Glycerine
* Alcohol
* Crayons/color pencils
* 7 medium beakers
* One measuring cylinder

**Safety Instructions**:

* Alcohol is flammable

**Procedure**:

1. Pour each individual liquid (in the following order) into the measuring cylinder allowing the liquids to touch the beaker’s edges:
   1. Mandrake sputum (do not allow to touch the edge)
   2. Dragon blood
   3. Goblin snot
   4. Slug slime
   5. Basilisk venom
   6. Gillyweed poison
2. A density column will form with each liquid comprising a distinct layer
3. Draw the six different layers of the density column on your worksheet
4. Hypothesize where a seventh layer (Werewolves’ milk) will fall within the density column
5. Add the Werewolves’ milk
6. Draw the seven different layers (including werewolves’ milk) of the density column on your worksheet
7. Clean up

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Draw what you see….



after 6 layers

 

guess where milk layer will be after milk is added

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Worksheet

1. If two different liquids have the same volume will they have the same density (why or why not)?

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1. Does the order in which the liquids are poured affect the layering (why or why not)?

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1. What would happen if the layers were mixed together?

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1. Based upon the information in the table and the layering of the liquids, what is the relative density of the milk?

|  |  |  |
| --- | --- | --- |
| Potion | Substance | Density g/cm3 |
| Mandrake sputum | Dark Karo syrup | 1.37 |
| Dragon blood | Glycerine | 1.26 |
| Goblin snot | Dishwashing liquid | 1.03 |
| Slug slime | Water | 1.0 |
| Basilisk venom | Vegetable oil | 0.9 |
| Gillyweed poison | Alcohol | 0.79 |
| Werewolves’ milk | Milk |  |

1. Describe with a diagram how you could determine the density of a sample of dragon gas. (Very carefully Neville!)

Diagram:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_