**Purpose: To learn the importance of a lab notebook and practice proper lab procedure.**

**Prediction/Hypothesis: I expect the vegetable oil, the ethanol, and water to remain separate, as 3 distinct portions of a heterogenous mixture**

**Hypothesis for Part 2:**

* **The soap will act as an emulsifying agent, causing all substances to mix together.**

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| Procedure & Methods: | Data & Observations: |
| 1. Obtain two test tubes ~25 mL in volume 2. Fill one test tube (test tube 1) with exactly 10 mL of distilled water (measure using graduated cylinder) 3. Fill test tube 1 with approximately 5 ml of vegetable oil and 5ml of ethanol (not measured with graduated cylinder) 4. Invest test tube once, then allow to settle 5. Fill a secondary test tube (test tube 2) with exactly 5mL of distilled water (measure using graduated cylinder) 6. Fill test tube 2 with approximately 5 mL of vegetable oil and approximately 10 mL of ethanol (not measured using graduated cylinder) 7. Flip the test tube once and allow the liquid to settle for several minutes | 1. No observations 2. Water was distinct 3. 5 ml of vegetable oil stayed distinct from the water – 5 ml of ethanol mixed slightly with oil 4. Mixture turned purple when inverted, and oil gradually filtered out to the top of the test tube 5. Water was distinct 6. 5 ml of oil stayed distinct, 10ml of ethanol mixed more than the 5ml 7. Upon flipped, mixture assumed a pink color, and oil gradually filtered to the bottom |
| 2) 1. Add 10-15 drops of soap to test tube 1  2. Gently invert tube 1 2-3 times  3. Allow mixture to settle for several minutes  4. Add 10 -15drops of soap to test tube 2  5. Gently invert tube 1 2-3 times  6. Allow mixture to settle | 1. Soap gradually settled to bottom 2. Mixture is now entirely mixed – no distinct sections 3. Mixture began to separate slightly 4. Soap gradually settled to bottom 5. No distinct sections, entirely mixed 6. Mixture began to separate into two distinct sections |
| 3) |  |
| 4) |  |
| 5) |  |
| 6) |  |
| 7) |  |

**Calculations:**

**Tables/Graphs/Charts/Sketches:**

**Conclusion:**

**Post-Lab Questions:**

1) I did not expect the ethanol to mix, which was an error in my hypothesis due to a misunderstanding on my part of the properties of ethanol.

2) My hypothesis was correct – the soap did act as an emulsifier, allowing the substances to mix, especially when agitated, although I did not expect the substance to begin separating afterwards, which is likely due to the fairly small quantity of soap added relative to the entire mixture.

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