

Density Rainbow Experiment

Florida State Standard:

SC.8.P.8.3 – Explore and describe densities of various materials through measurement of their masses and volumes.

Florida State Benchmark:

SC.8.P.8.4 – Classify and compare substances based on characteristic physical properties.

Materials Required:

- Clear plastic or glass container (e.g., tall glass or beaker)
 - Honey or syrup (for bottom layer)
 - Dish soap
 - Water (color with food dye for visibility, optional)
 - Vegetable oil
 - Rubbing alcohol (optional color for contrast)
 - Food coloring (optional)
 - Dropper or spoon (for careful pouring)
 - Small objects like beads or grapes (for optional density test)
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Safety Precautions:

1. **Handle rubbing alcohol with care** – it is flammable. Keep it away from open flames or heat sources.
 2. **Avoid ingestion** of any materials in the experiment.
 3. **Carefully pour** liquids to prevent spills and keep the workspace clean.
 4. **Use a stable container** to prevent tipping.
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Procedure:

1. **Prepare the Container:** Place the clear container on a stable surface where it won't be disturbed.
2. **Create Layers:**
 - **Step 1:** Pour honey or syrup into the container to form the bottom layer, as it has the highest density.
 - **Step 2:** Slowly add dish soap over the honey. Pour carefully to avoid mixing.
 - **Step 3:** Next, gently add colored water on top of the dish soap, pouring down the side of the container to maintain separation.
 - **Step 4:** Carefully pour vegetable oil over the water layer.
 - **Step 5:** Finish by adding the rubbing alcohol on top. (Optional: Add food coloring for visibility in each layer.)

3. **Observe the Layers:** Notice how each liquid sits on top of the one with a higher density, forming distinct layers.
 4. **Density Test (Optional):** Drop small objects (like beads or grapes) into the container to see which layer they settle in, based on their density.
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Note 1: (Clean Up)

1. Dispose of the liquid layers carefully by pouring them into a disposable container and following proper disposal guidelines.
2. Clean the container with soap and water if it will be reused.
3. Wipe the workspace to ensure there are no sticky or slippery residues.