**Sinking and Floating Water**

**Objectives**:

Students will discover if hot water and cold water is denser or less dense than room temperature water.

**Question:**

1. What happens when hot water is put into room-temperature water?
2. What happens when ice cold water is put into room-temperature water?

**Hypothesis**:

I think… (Read Question 1 and 2, then write what you think will happen when hot water, then cold water is placed in room temperature water. Be sure to use either ***denser*** or ***less dense*** to describe how the water will react to the temperature change)

1. I think hot water is ***denser***/***less dense*** than room temperature water.
2. I think ice cold water is ***denser***/***less dense*** than room temperature water.

**Experiment**

To prove my hypothesis, my group and I will test the density of hot water and cold (ice) water. We will lower a vial of colored hot water (red), and then colored cold water (blue) into separate cups of room temperature water to see if the water in each vial sinks or floats. I will document our results on my ***Sinking and Floating Water*** worksheet.

**Materials**

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| 1 tray |
| 1 Shammy |
| 2 large plastic cup |
| 2 small vials |
| 2 craft sticks |
| 2 large plastic cups (12oz) |
| 2 rubber bands |
| 2 clothes pins |
| 1 bottle of red colored hot water\* |
| 1 bottle of blue colored ice cold water\* |
| 1 pitcher of room temperature water\* |
| 1 blue color pencil per person |
| 1 red color pencil per person |
| 1 pencil sharpener |
| Sinking and Floating Water Worksheet  |

\*see teacher for hot water mixed with red food coloring and ice cold water mixed with blue food coloring.

**Procedure Pt 1-Sinking and Floating Water (Hot)**

1. Document your Hypothesis.
2. Get the materials (see Materials List).
3. Cover the tray with the shammy cloth.
4. Place a craft stick on the side of one of the vials and attach it with a.
5. Fill the glass bottle with room temperature green (food coloring) rubber band.
6. Repeat Step 5 with the remaining vial, craft stick and rubber band.
7. Fill both plastic cups (¾ full) with room temperature water.
8. Practice positioning a vial into a cup of water and attaching it with a clothes pin (make sure the water in your cup is very still).
9. Fill one vial with red hot water (adult assistance required).
10. Carefully place the hot water vial ladle into one of the cups of room temperature water
11. Attach the hot water ladle to the cup with a clothes pin.
12. Observe how the red colored hot water reacts to the room temperature water.
13. Document your observations on the ‘Sinking and Floating Water’ work sheet.

**Procedure Pt 1-Sinking and Floating Water (Cold)**

1. Fill (teacher) the remaining vial with blue ice cold water.
2. Carefully place the cold water vial ladle into the remaining cup of room temperature water
3. Attach the cold water ladle to the remaining cup with a clothes pin.
4. Observe how the blue colored ice cold water reacts to the room temperature water.
5. Document your observations on the ‘Sinking and Floating Water’ work sheet.