**Density Suspension Challenge**

**Starter:**

1. If you throw an empty, but closed, water bottle into a pool, will it float or sink?
2. If you throw a completely full water bottle into a pool, will it float or sink?
3. Is it possible to get the bottle to get the bottle to be suspended in the water? If so, how?

**Introduction:**

Your challenge today is to get your empty bottle to be suspended in the water tank, just like the bulbs in the thermometer to the right. You will have to use what you know about density in order to complete the challenge. Good luck!

**Hypothesis 1:** If we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the bottle, then it will be suspended in the water because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Trial 1:** Write out or draw what you will do AND WHY for your first trial.

**Data Table:**

|  |  |  |
| --- | --- | --- |
| **Trial #** | **What you did** | **Result** |
| **1** |  |  |
| **2** |  |  |
| **3** |  |  |
| **4** |  |  |
| **5** |  |  |

**Hypothesis 2:** If we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the bottle, then it will be suspended in the water because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Trial 2:** Write out or draw what you will do AND WHY for your second trial.

**Hypothesis 3:** If we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the bottle, then it will be suspended in the water because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Trial 3:** Write out or draw what you will do AND WHY for your third trial.

**Hypothesis 4:** If we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the bottle, then it will be suspended in the water because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Trial 4:** Write out or draw what you will do AND WHY for your fourth trial.

**Hypothesis 5:** If we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the bottle, then it will be suspended in the water because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Trial 5:** Write out or draw what you will do AND WHY for your fifth trial.

**Conclusion:**

1. What did you have to do in order to get your bottle to be suspended in the water? Include a drawing.
2. Compare the density of your empty bottle to the water.
3. Compare the density of your suspended bottle to the water.