**Activity: Soda and Scientific Reasoning**

Use your powers of observation, investigation, and scientific thinking to figure out why some soda cans float and some sink.

**Materials Demo Observations**

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| **Soda** | **Prediction** | **Observation** |
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* A variety of 12 oz. canned sodas
* Fresh water
* Bucket or other large container
* Balance
* Calculator
* Towels

**Procedure**

1. Observe the soda can demonstration. Record your observations above.
2. Examine your soda cans for variables that potentially affect soda can sinking and floating.
   1. To help you develop your list, look at the similarities and differences between the regular sodas. Then look at the similarities and differences between the diet sodas.
   2. Develop a list of at least three variables that might affect soda can sinking and floating record and record these in Table 1.1.
   3. For each variable make a prediction as to how the variable affects the sinking and floating of soda cans.  Record your prediction in Table 1.1.
   4. For each variable explain your prediction in Table 1.1.

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| **Table 1.1.** Table of variables affecting soda can sinking or floating | | | |
| **Variable** | **Prediction** | **Explanation** | **Observation** |
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1. Using your list of soda can variables, develop a hypothesis for the observed floating and sinking of the demonstration cans. Record your hypothesis below.
2. Transfer your list of soda can variables from Table 1.1 to Table 1.2. Note: these should be variables that you can quantify or test using the materials available.

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| **Table 1.2.** Soda can sinking and floating experiment variables, predictions, and observations. | | | | | |
| **Soda** | **Option for Variable 1** | **Option for Variable 2** | **Option for**  **Variable 3** | **Prediction: Sink or Float?**  **& Why?** | **Observation:**  **Sink or Float**  **+ other Observations** | |
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1. Generalize the hypothesis you developed in procedure 3 to apply to all soda cans. Predict which of your cans will sink and which will float. Record your predictions in Table 1.2.
2. Test your hypothesis. Record your observations in Table 1.2.
   1. Based on your observations of your soda cans sinking and floating, review how the variables you chose affected sinking and floating.
   2. Return to Table 1.1 and summarize your observations in the last column. Note: it may be helpful to look at the variable columns in Table 1.2.
3. Did you have any results that seemed surprising? Please write about them below and propose an explanation below for what you observed.