

# Scientific Method

1. State the problem
  - State clearly what question is being asked.
2. Collect Information
  - Search for background information or explore materials to make a prediction
3. Form a Hypothesis
  - Write a sentence in "if/then" form. You are making a prediction. The prediction must include what one variable will be changed and how it will be measured.  
(see page two for information on variables - control/constant, independent, and dependent)
4. Design an experiment
  - Identify the procedure, variables, and materials needed.  
(see page two for information on variables - control/constant, independent, and dependent)
5. Conduct the experiment and record data
  - Organize data in the appropriate manner. Make sure that the table, chart, or graph is properly labeled.
6. Results/Conclusions
  - Make relevant observations and comments. Explain whether data supports the hypothesis.

# Variables

## **Independent Variable**

The independent variable is the one attribute that the experimenter changes. It is also called the manipulated variable.

## **Dependent Variable**

The dependent variable is the attribute that the experimenter observes to determine how it responds when the independent variable is changed. **This is the attribute that you measure.** The best way to collect data is to use numbers (time, temperature, weight, volume, etc.). Measuring your data should be done quantitatively (using numbers) as opposed to qualitatively (opinion only - root beer stained the baby teeth the most.) The dependent variable is also called the responding variable.

## **Control or Constant Variable**

All attributes that are kept the same and not allowed to vary are controlled variables.