

# **The Scientific Method**

USING THE

# SCIENTIFIC METHOD



## 1 QUESTION

Ask yourself, "What do I want to learn more about?", or "I wonder what would happen if . . .?"

## 2 HYPOTHESIZE

Research to help you make an educated guess, or hypothesis, and then answer your question.

## 3 EXPERIMENT

Test your hypothesis by making a plan and conducting an experiment.

## 4 OBSERVE & RECORD

Make careful observations and write down what happens.

## 5 ANALYZE

Use your information to draw conclusions about your experiment. Was your hypothesis correct?

## 6 SHARE RESULTS

Explain your results by presenting your experiment, observations, and conclusions.

# Variables

**Variables are the things that are changed or could change in an experiment**



# Types of Variables

1. Independent variable ~ the scientist changes this variable
2. Dependent variable ~ part of the experiment that changes as a result of some other action, what is measured
3. Constant ~ the part of the experiment that is not changed by the scientist.

**Experiment 1:** You want to figure out which brand of microwave popcorn pops the most kernels so you can get the most value for your money. You test different brands of popcorn to see which bag pops the most popcorn kernels.

- Independent Variable: Brand of popcorn bag (It's the independent variable because you are actually deciding the popcorn bag brands)
- Dependent Variable: Number of kernels popped (This is the dependent variable because it's what you measure for each popcorn brand)

**Experiment 2:** You're interested in how rising sea temperatures impact algae life, so you design an experiment that measures the number of algae in a sample of water taken from a specific ocean site under varying temperatures.

- Independent Variable: Ocean temperature
- Dependent Variable: The number of algae in the sample