

# Scientific Method Study Guide

## Why is using the Scientific Method important to research?

Scientists use the scientific methods to guide their investigations. It provides a way for other scientists to repeat their experiment exactly to see if the results are always the same.

## Steps of the Scientific Method?

### Question

Asking a good testable question is the most important step in performing a good experiment. It is made based on observations you make using your senses.

### Hypothesis

The hypothesis is a good explanation, an educated guess, a prediction, or a reasonable answer to your question.

### Procedure

1. Think about the evidence needed to test your hypothesis.
2. Select a strategy to collect your **data**.  
experiment in the lab, observation in nature, make a model
3. Record your steps exactly as they are to be done.
4. Keep in mind your "variables" or factors in your experiment:  
Controlled Variables - factors you keep the same to make your experiment fair  
Independent Variable - the one factor you are changing in your experiment  
Dependent Variable - the result of the change you made with the independent variable

### Experiment

Follow the steps in the procedure exactly to gather your data.

### Data

To make your experiment reliable, you will gather and report your data, or results, as you do your experiment. You may record your data in a chart, table, graph, drawing, or narrative. Choose the method of reporting that best demonstrate your results.

### Conclusion

This is not a repeat of the data. A scientist will analyze the results of her experiment and determine whether the results support or disprove her hypothesis.