

## Scientific Inquiry and Skills Lab

### Introduction

Collecting and analyzing data is a critical step in the scientific method. Your experimental conclusion should be based on data collected. When collecting data, it must be organized so individuals can understand your work. Data is usually organized in tables. After organizing your data, you must analyze it to find a relationship between your variables. For example, a student performed an experiment to see the effect of fertilizer on plant growth. The student organized her data in a table and then graphed her data accordingly. She measured the height of her plants every day for thirty days. She had one group of plants that received fertilizer and one that did not. She then analyzed her data by graphing her results. What is the independent variable in this experiment? Dependent variable? The experimenter decided to measure the plants every day for thirty days and the height of the plants is dependent on the day.

Purpose: The purpose of this lab is to learn how to collect, organize, and analyze data in tables and graphs.

### Scenario

You will work with a partner to collect data based on coin tosses. Every coin has two sides, heads and tails. For every toss of the coin there is a 50% chance of getting heads and a 50% chance of getting tails. Your goal is to see if there is a relationship between the # of tosses and the percent of heads tossed.

Hypothesis: \_\_\_\_\_

---

### Procedure

1. Working with a partner, you will toss a coin a certain number of times based on the data table. You will record the number of heads tossed and the number of tails tossed for each trial.
2. For each trial you will calculate the percentage of heads and tails tossed. For example, if you toss 6 heads out of a total of 10 tosses you have tossed heads 60% of the time for that trial.
3. Lastly, you will graph your data. Your graph must show the relationship between the percentage of heads and the percentage of tails tossed.



**Directions:** Answer the following questions in complete sentences on a separate sheet of paper.

**Questions**

1. What is the independent variable in this experiment? Dependent Variable?
2. What was the relationship between the number of tosses and the percentage of heads tossed?
3. Describe what happened as the number of tosses increased.
4. What is a good title for your graph?
5. Write a conclusion based on the data collected in your experiment.