

What is Science?

Science is a way to gain knowledge by testing predictions.

Scientific method:

Step 1, Observation: Choose a topic, do research on it.

Example: Why are some tomato plants larger than others? I know that plants use minerals from the soil and sunlight to grow.

Step 2, Hypothesis: Make an educated guess related to the topic.

Example: Tomato plants which get more light grow larger.

Step 3, Prediction: If the hypothesis is true, what is one thing you can expect to observe?

Example: Tomato plants which get more sunlight will grow larger than identical tomato plants which get less sunlight.

## Step 4 Experiment: Test the prediction

Example: Plant two groups of tomato plants from identical seeds, in identical pots, in identical soil. Place the first group outside during the summer for 10 hours each day then bring them inside to a dark room. Place the second group outside for only 6 hours each day. After 2 months record the average height of the plants in each group

Step 5 Conclusion: Determine if your predication was correct. If your prediction was incorrect, then either your experiment was flawed or your hypothesis is incorrect, or at least not complete.

If your prediction was correct you have NOT proved your hypothesis, you have “supported” it.

Example: If the plants which were outside more grew larger, it is possible this is because of something else, maybe being in the wind longer made them grow larger.

On a blank piece of paper describe a prediction for each hypothesis and an experiment to test that prediction. Due at end of class.

**Hypothesis 1:** Eating salty food increases human heart rates.

**Hypothesis 2:** Soapy water evaporates quicker than pure water.

**Hypothesis 3:** It is impossible to transmit thoughts telepathically between two people.