

Nature of Science

You are at the top of Mt. Haleakala, a dormant volcano that rises over 10 000 feet above the island of Maui in Hawaii. You noticed that a person nearby is talking about starting to feel dizzy, while someone else is complaining about a sudden headache. You feel fine. **Why are some people feeling sick when others are not?** What factors might be considered? Choose one of these factors to investigate.

1. Write down your hypothesis. A hypothesis should show a direct cause and effect relationship.
2. What is your independent variable (the variable that you are manipulating in the experiment of the “causes”)?
3. What is your dependent variable (the “effect” you are measuring)?
4. What are some controls you need to consider for your experiment (the control variables are every other factor you are keeping constant among all your experimental groups)?

When writing a formal lab report, you must fulfill the following steps. Write down the following for your experiment. The whole lab report should be written in past passive.

Problem	<ul style="list-style-type: none"> • Simple • Can be tested 	
Hypothesis	<ul style="list-style-type: none"> • Shows a direct cause and effect relationship • Show reasoning behind your educated prediction 	
Materials	<ul style="list-style-type: none"> • Max two columns 	
Procedure	<ul style="list-style-type: none"> • Write a detailed paragraph of what was investigated • Include how results were recorded • Write in the past passive 	
Observations	<ul style="list-style-type: none"> • Qualitative and quantitative • All graphs must be done on graph paper or computer generated 	Sketch the graph of expected results. Include labels.
Discussion / Analysis	<ul style="list-style-type: none"> • Interpret observations and draw conclusions • Reflect back on hypothesis • Include reasoning behind results • Improvements to experimental design • The next step in the investigation • Significance of experiment to society 	
Conclusion	<ul style="list-style-type: none"> • Summary statement on the results of the experiment referring back to the original problem 	