

## Writing a Hypothesis

### What Is a Real Hypothesis?

A hypothesis is a tentative statement that proposes a possible explanation to some phenomenon or event. A useful hypothesis is a **testable** statement which may include a prediction. A hypothesis should not be confused with a theory. Theories are general explanations based on a large amount of data. For example, the theory of evolution applies to all living things and is based on wide range of observations.

### Objectives:

- Writes a testable question with an independent and dependent variable.
- Demonstrates that a well-written hypothesis predicts the relationship between two variables.
- Defines and give examples of the “independent variable”, “dependent variable” and “hypothesis”.
- Formulates a reasonable, clear and specific hypothesis

A useful hypothesis is a **testable** statement which may include a prediction. The key word is **testable**. That is, you will perform a test of how two variables might be related. This is when you are doing a real experiment. You are testing variables.

Formalized hypotheses contain two variables. One is "independent" and the other is "dependent." The independent variable is the one you, the "scientist" control and the dependent variable is the one that you observe and/or measure the results.

**Formalized Hypotheses** example: **If skin cancer is related to ultraviolet light, then people with a high exposure to uv light will have a higher frequency of skin cancer.**

**If leaf color change is related to temperature, then exposing plants to low temperatures will result in changes in leaf color.**

The ultimate value of a formalized hypothesis is it forces us to think about what results we should look for in an experiment.

### Assignment

The following questions can be used to write testable hypotheses.

1. First identify the independent and dependent variable and the control group.
2. Write a testable hypothesis.

Example: Does salt affect the growth of pea plants?

Independent variable: the amount of salt added to the plant

Dependent variable: how tall the plant grows in cm

Control group: plants not receiving any salt

Hypothesis: If varying amounts of salt affects plant growth then plants that receive high doses of salt when watered will not grow as tall as plants that have little or no salt added to the water.

Now you try. Please do these in your composition notebook. Title: "Writing Hypotheses"

1. Which brand of mosquito repellent, A or B, prevents mosquito bites the best?
2. Does sunlight affect the growth of mold on bread?
3. Do potatoes need light to sprout?
4. Do students who watch lots of TV have lower grades?
5. Does listening to music help you learn better?
6. Is plant growth affected by the color of light?
7. Does eating chocolate cause pimples?
8. Does temperature affect the growth of bacteria?
9. Do leaves turn color because of colder temperatures?
10. Do plants respond to music?