

Scientific Method—Variables Notes

Identifying Variables and Designing Investigations

A **variable** is any factor that can be changed or controlled in an experiment.

There are 3 kinds of VARIABLES

- ❖ **Independent Variable**—something that is changed by the scientist.
 - What is tested
 - What is manipulated
- ❖ **Dependent Variable**—something that might be affected by the change in the independent variable.
 - What is observed
 - What is measured
 - The data collected during the investigation
- ❖ **Controlled Variable**—a variable that is not changed
 - Also called constants
 - Allows for a “fair test”

Example: Plants were tested to see if Humongo plant food would cause plants to grow to twice their size. Two nearly identical plants, were placed side by side near a window and given a quart of water daily. Plant A was given Humongo plant food and Plant B was not.

Independent Variable—Humongo plant food

Dependent Variable—The amount of growth of each plant was measured and observed.

Controlled Variable—The same type plants grown under the same conditions.

Designing investigations

- ❖ **The greater the amount of soap in a soap and water mixture the bigger a soap bubble can be blown.**
 - Design a poster that will show how to test this hypothesis.
 - Identify what is the **independent** variable.
 - Identify what is the **dependent** variable.
 - Identify what is the **controlled** variable.
- ❖ **The farther a ball drops, the higher it will bounce.**
 - Design a poster that will show how to test this hypothesis.
 - Identify what is the **independent** variable.
 - Identify what is the **dependent** variable.
 - Identify what is the **controlled** variable.