

DESIGNING EXPERIMENTS

Identifying Variables

Variables are any of the factors that could change in a scientific investigation.

A controlled scientific investigation is designed so that only one factor is changed or manipulated. However, one or more factors may be measured during an experiment.

All other factors remain constant throughout the study.

- The **independent variable** is the factor that you wish to test and that you manipulate or change so that you identify its effects. When you use the "If . . . , then . . . , because . . ." form to write your hypothesis, the independent variable is found after the word *if*.
- The **dependent variable** is the factor that you measure to gather results. It is expressed in your hypothesis after the word *then*.

1. List all possible variables that could affect the growth of tomatoes on a tomato plant.

2. Choose one of the variables that you listed above to be the independent variable in an investigation. Explain your choice, and write an "If . . . , then . . . , because . . ." hypothesis.
