Developing a Hypothesis

A hypothesis is an educated guess, based on research or general knowledge, that is developed before an experiment is conducted. In order to teach scientific writing, require students to write a hypothesis as an "If . . ., then . . ." statement. Phrases such as "I think . . .", "I believe . . .", "I predict . . ." should not be used. If items being tested are not written in the problem, then they must be written in the hypothesis.

Stress that if a hypothesis is wrong after the experiment is completed, that does not indicate that the experiment was a failure. Some great ideas and inventions have resulted from incorrect hypotheses. Just as much knowledge, if not more, can be gained from an incorrect hypothesis as from a correct one. Begin this lesson with a few prediction activities (see pages 26 and 27).

Examples of Problems and Hypotheses:

1. What is the effect of cigarette smoke on household plants?
   If I test to see how cigarette smoke affects household plants,
   then it will ____________________________________________

2. How many styrofoam peanuts will dissolve in 1/3 cup of acetone?
   If I test to determine how many peanuts will dissolve in the acetone,
   then it will be ________________________________________

3. In a natural filtration system, how should rocks, sand, and dirt be layered to get the cleanest water?
   If I test to see how the materials should be layered,
   then their order from top to bottom will be ________________

4. Do dogs see in color?
   If I test a dogs' ability to see in color,
   then they ____________________________________________

5. How does exercise affect the heart rate?
   If I test to determine how exercise affects the heart rate,
   then it will ___________________________________________
Directions: Write a hypothesis for each problem below using an “If . . ., then . . .” statement. Do not write “I think . . .” or any similar phrase.

Example: Which is a more effective heat source, coal, natural gas, or electricity?

If I test to see which provides warmest heat in the shortest time, then it will be natural gas.

1. Which brand of soap gets rid of germs the best?

2. What is the best amount of sunlight and water for growing violets?

3. Which brand of sneakers will allow you to jump the highest?

4. How many pounds of weight can be held by a bridge made out of 30 popsicle sticks?

5. How are student grades affected by the amount of time spent viewing television?