

### SECTION 1.3 THINKING LIKE A SCIENTIST

- One cold morning your car does not start. Make two hypotheses about why the car will not start. Dead Battery / No Gas / Loose Spark Plugs / Loose Wires
- Suppose you try several experiments with your car. You try a battery jump, which does not work. There seems to be enough gas in the car. You wiggle a wire in the engine, and the car starts on the next try. Explain how these tests help you decide what was wrong with the car. I performed supported hypothesis
- The following is a list of observations from everyday experiences:
  - Hummingbirds have long beaks.
  - Moisture forms on the outside of a cold glass.
  - Ice cubes float.
  - Oil and water don't mix.
  - There are fewer fish in a particular creek this year.
  - Propose one hypothesis for each observation.
  - Select one of the hypotheses and describe an experiment that you could do to test it.
- Discuss the statement "No theory is written in stone." Theories only as reliable as the knowledge on which they are based

### SECTION 1.4 PROBLEM SOLVING IN CHEMISTRY

- Apples are selling for \$1.50 a pound. Each apple weighs, on average, 0.50 pounds. You have \$6.00. How many apples can you purchase?
  - ANALYZE (List the knowns and unknown.)
 

Knowns:	Unknown:
cost of apples = <u>\$1.50/lb</u>	number of apples purchased = ?
weight of an apple = <u>\$0.50/lb</u>	
dollars available = <u>\$6</u>	
  - CALCULATE (Solve for the unknown.)
 

Use an expression that converts cost per pound to cost per apple.

$$\text{cost per apple} = 0.50 \text{ pound} \times \frac{\$1.50}{1 \text{ pound}}$$

$$\text{cost per apple} = \underline{\$0.75}$$

Use an expression that relates cost per apple to dollars available.

$$\text{number of apples purchased} = \frac{\$6.00}{\$0.75}$$

$$\text{number of apples purchased} = \underline{8}$$
- Describe an alternate way to solve Problem 1.

\$6.00 / ? lbs