Metals vs. Nonmetals Lab

Problem: What are some properties of metals and nonmetals?

Materials:

- samples of elements
- small hammer
- conductivity apparatus
- test tubes
- goggles
- dilute hydrochloric acid
- chisel or nail
- beaker
- dropper

Procedure:

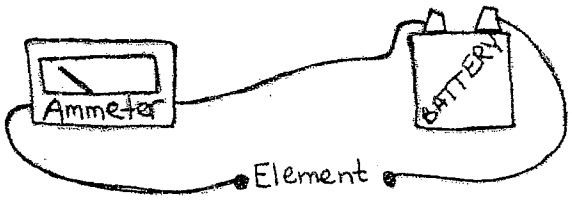
1. Obtain a small sample of each element. Observe the physical properties that are apparent (ie. color,luster, which state of matter). Construct a data table in your notebook as shown below. Record all observations.

ELEMENT	PHYSICAL PROPERTIES OBSERVED

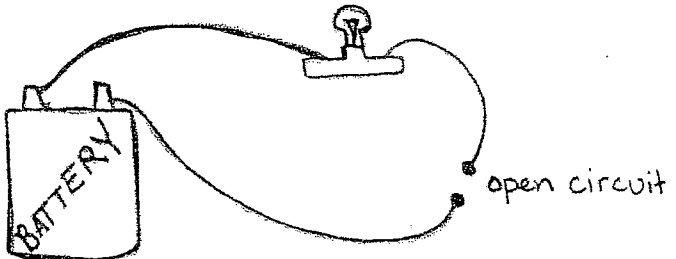
2. With the small hammer, try to drive the chisel or nail into each sample. This procedure tests the malleability of your sample. Construct a data table in your notebook as shown below. Record your ovservations for each sample.

ELEMENT	CONDUCTIVITY	HAMMER	ACID

3. Using the conductivity apparatus as shown below, touch the two rods to each sample of Al, Zn, Cu, S, Pb, C. Record your observations in the data table.



4. Set up the circuit as shown in the diagram. Place each element (metal and nonmetal element across the open ends of the circuit, one at a time. Record your observations.



5. Place a small sample of each element in separate labeled test tubes. Add a few drops of acid to each test tubes. Record your observations in the data table.

Analysis

1. Rank the elements tested according to their conductivity. List the best conductor first.

_____
_____
_____
_____
_____
_____

2. Rank the elements according to their malleability and then by reactivity.

MALLEABILITY	REACTIVITY
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3. Based on information from the periodic table, classify your elements as metals of nonmetals.

4. How do the properties of the elements you observed compare to their positions in the periodic table?

5. Compare your observations of the **conductivity apparatus** with the **circuit set up.** Describe the relationship between the volts registered and the brightness of the bulb.

6. What are some physical and chemical properties of metals and nonmetals?