Chapter 2 Study Guide

Lesson 6 Questions

1. Describe the difference between an element and a compound.

2. What is meant by physical form?

3. How many elements are included in the chemical formula for sodium nitrate, $NaNO_3$? Name them.

4. What is the difference between NaOH(*s*) and NaOH(*aq*)?

5. You see a ring that looks like a diamond but wonder why it's so cheap. The jeweler says the stone is a type of diamond called cubic zirconia. How can chemical symbols show that cubic zirconia is not a diamond?

6. You find two containers on a chemical shelf, one labeled $Cu_2O(s)$ and a second labeled $CuO(s)$. Are these substances the same or different? Explain.

Lesson 9 Questions

7. List three properties of the elements that are useful in sorting the elements.

8. Do you expect carbon (C) to be more similar to nitrogen (N), oxygen (O), or silicon (Si). Why?

9. Suppose you have equal amounts of calcium (Ca) in two beakers. In one beaker, you react the calcium with oxygen (O). In the other beaker, you react the calcium with sulfur (S). The reaction with oxygen forms the compound CaO.

a. What do you predict is the chemical formula of the compound formed from the reaction between calcium and sulfur?

b. Which compound has more mass, the compound containing calcium and oxygen or the compound containing calcium and sulfur? Explain your thinking.

Lesson 10 Questions

10. Describe how reactivity changes as you go down Group 1A.

11. Choose two different properties and describe how they vary across a period.

12. You will need a handout of the periodic table.
    a. On your periodic table, clearly label the alkali metals, the alkaline earth metals, the halogens, and the noble gases. (If you wish, you may color them and provide a color key at the top.)
    b. Label the main group elements, the transition elements, and the lanthanides and actinides.

13. Name two elements that have properties similar to those of beryllium (Be) and have average atomic masses higher than 130.

14. Which of these elements are solid at room temperature?
    a. Fluorine (F)
    b. Titanium (Ti)
    c. Lead (Pb)
    d. Oxygen (O)
    e. Potassium (K)
    f. Silicon (Si)

15. Which of these elements are nonmetals?
    a. Bromine (Br)
    b. Carbon (C)
    c. Boron (B)
    d. Thallium (Tl)
    e. Phosphorus (P)
    f. Aluminum (Al)

16. Which of these elements are the least reactive? Explain your thinking.
    a. Chlorine (Cl)
    b. Barium (Ba)
    c. Copper (Cu)
    d. Rubidium (Rb)
    e. Potassium (K)
    f. Mercury (Hg)