

Read pages 443 – 451.

1. List the three basic types of chemical bonds.
2. Covalent bonds typically occur between what kind of elements?
3. What do the dots in Lewis structure diagrams represent?
4. What do the lines in Lewis structure diagrams represent?
5. Draw the Lewis structures for one atom of each of the following elements: sulfur, carbon, hydrogen, bromine, phosphorous
6. Draw the Lewis structures for the following diatomic molecules: hydrogen gas ( $H_2$ ), chlorine gas ( $Cl_2$ ), oxygen gas ( $O_2$ ), nitrogen gas ( $N_2$ ).
7. What is a polyatomic molecule?
8. Draw the Lewis structures for the following covalent compounds:
  - a. carbon tetrachloride ( $CCl_4$ )
  - b. hydrogen sulfide ( $H_2S$ )
  - c. nitrogen trifluoride ( $NF_3$ )
  - d. hydrobromic acid ( $HBr$ )
9. Name six common substances that have covalent compounds.
10. List three properties of covalent compounds.

Read pages 452 – 459.

1. In general, what kinds of elements form ionic bonds?
2. Write the electron dot notations for the following ionic compounds. Be sure to include the charges of the atoms.
  - a. Beryllium chloride ( $\text{BeCl}_2$ )
  - b. Sodium oxide ( $\text{Na}_2\text{O}$ )
3. Calcium chloride is made up of the elements calcium and chlorine. How many chlorine atoms can be ionically-bonded to one calcium atom? Draw the electron dot notation to illustrate your answer.
4. Why do ionic compounds form crystal lattices?
5. The formula for hydrogen peroxide is  $\text{H}_2\text{O}_2$ . What is its formula unit?
6. The formula for glucose (a sugar) is  $\text{C}_6\text{H}_{12}\text{O}_6$ . What is its formula unit?
7. List three properties of most ionic compounds.
8. What is an electrolyte?
9. What does the electron sea theory say?
10. What does HCP stand for and what does it describe?
11. What is an alloy?
12. List three properties of most metals.
13. Why do metals conduct electricity so well?