

**Atoms and Bonding** ▪ *Reading/Notetaking Guide***Covalent Bonds** (pp. 192–197)

*This section describes how covalently bonded atoms are held together. It explains how the properties of molecular compounds differ from those of ionic compounds. It also describes how unequal sharing of electrons affects molecules.*

**Use Target Reading Skills**

*As you read, fill in the table to compare and contrast the properties of molecular and ionic compounds.*

	Melting Point	Boiling Point	Electrical Conductivity
Molecular compounds			
Ionic compounds		higher	

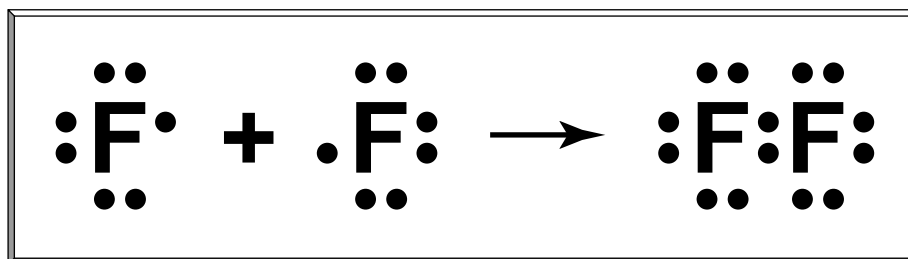
**How Covalent Bonds Form** (pp. 193–194)

1. What is a covalent bond?

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2. On the dot diagram below, draw a circle around the shared electrons that form a covalent bond between two fluorine atoms.



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**Covalent Bonds** (*continued*)

3. The two bonded fluorine atoms form a neutral particle called a(n) \_\_\_\_\_.
4. When two atoms share two pairs of electrons, a(n) \_\_\_\_\_ is formed.
5. Is the following sentence true or false? Atoms of some elements can share three pairs of electrons. \_\_\_\_\_

**Molecular Compounds** (pp. 194–195)

6. How are atoms arranged in molecular compounds?  
\_\_\_\_\_
7. Circle the letter of each sentence that is true about molecular compounds.
  - a. More heat is needed to separate their molecules than is needed to separate ions in an ionic compound.
  - b. They melt at much higher temperatures than do ionic compounds.
  - c. They boil at much higher temperatures than do ionic compounds.
  - d. Most are poor conductors of electric current.

**Unequal Sharing of Electrons** (pp. 195–197)

8. How do molecules in certain molecular compounds come to have a slight electrical charge?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. In a(n) \_\_\_\_\_ covalent bond, electrons are shared unequally.
10. How are electrons shared in a nonpolar covalent bond?  
\_\_\_\_\_
11. How can a molecule be nonpolar overall and still contain polar bonds?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. Is the following sentence true or false? Water molecules are polar.  
\_\_\_\_\_

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13. Why do polar and nonpolar molecules have different properties?

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14. Why don't water and vegetable oil mix?

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15. When you do laundry, what causes nonpolar oil or greasy dirt to mix with the polar water?

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