

Atoms and Bonding ▪ *Guided Reading and Study***Covalent Bonds**

This section describes how chemical bonds form when two atoms share electrons. It also describes how electrons are shared unequally in some chemical bonds.

Use Target Reading Skills

Before you read, preview the red headings. In the graphic organizer below, ask a what or how question for each heading. As you read, answer your questions.

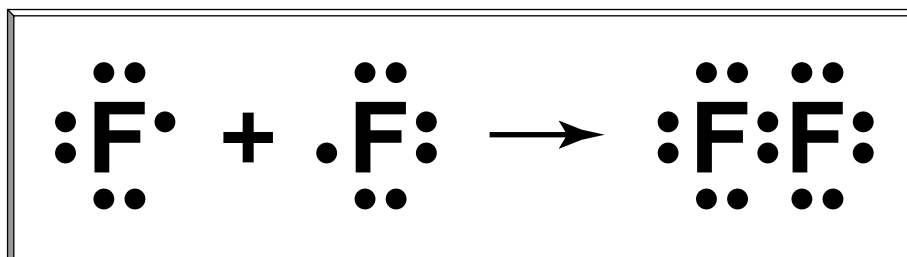
Covalent Bonds

Question	Answer
How do covalent bonds form?	Covalent bonds form when . . .

How Covalent Bonds Form

1. What is a covalent bond?

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

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.
 - 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 electricity when dissolved in water.

Unequal Sharing of Electrons

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?

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

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