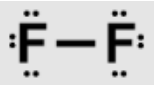


Vocabulary: Covalent Bonds



Vocabulary

- Covalent bond – a chemical bond in which atoms share a pair of valence electrons.
 - Covalent bonds form between nonmetal atoms.
- Diatomic molecule – a molecule that consists of two atoms.
 - Examples of diatomic molecules include fluorine (F₂) and hydrogen (H₂).
 - Molecules with more than two atoms are *polyatomic molecules*.
- Lewis diagram – a diagram that shows the element symbol surrounded by dots representing *valence electrons* and dashes that represent pairs of shared electrons.
 - The Lewis diagram at right shows two fluorine atoms in a fluorine molecule (F₂). 
- Molecule – a group of two or more atoms joined by chemical bonds.
- Noble gases – a group of chemical elements that do not readily form chemical bonds.
 - The noble gases are helium, neon, argon, krypton, xenon, and radon.
 - Helium has two valence electrons. Other noble gases have eight valence electrons.
- Nonmetal – an element that is generally a poor conductor of heat and electricity.
 - Nonmetal atoms tend to gain or share electrons when forming chemical bonds.
 - Nonmetals usually are lower in density and have lower boiling and melting points than metals.
- Octet rule – a rule of thumb that states that atoms are most stable when surrounded by eight valence electrons.
 - Metals lose valence electrons to obtain a stable configuration.
 - Nonmetals gain or share electrons to obtain a stable configuration.
 - Elements with five or fewer electrons are exceptions to the octet rule because they become stable when they have two valence electrons.
- Shell – a particular region where electrons can orbit the nucleus of an atom.
- Valence – the number of chemical bonds an element is capable of forming.
 - The valence of an element is equal to the number of electrons that an atom of that element gains, loses, or shares while forming chemical bonds.
- Valence electron – an electron in the outermost shell of an atom.