**Vocabulary:** **Covalent Bonds**

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**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).

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* 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.