CHAPTER OVERVIEW

6: Chemical Bonding - Electron Pairs and Octets

Theories of chemical bonding invariably involve electrons. When one atom approaches another, the valence electrons, found in the outermost regions of the atoms, interact long before the nuclei can come close together. Electrons are the least massive components of an atom, and so they can relocate to produce electrostatic forces which hold atoms together. According to Coulomb's law, such electrostatic or Coulombic forces are quite large when charges are separated by distances of a few hundred picometers—the size of an atom. Coulombic forces, then, are quite capable of explaining the strengths of the bonds by which atoms are held together.