

Chemical Bonds

Types of Chemical bonds include:

- Ionic Bonds
- Covalent Bonds
- Hydrogen Bonds
- Van der Waals force

Ionic Bonds

- Attraction of oppositely charged ions
- No sharing of electrons
- Weak bond (easily dissociates in water)

Covalent Bonds

- Formed by sharing of valence electrons
- Types of covalent bonds include...
 - Single = sharing of single pair electrons
 - Double = sharing of two pairs of electrons
 - Non polar: shared electrons (equal time around each nucleus)
 - Strongest of all bonds
 - Polar
 - Negative charge where electrons spend most time

Hydrogen Bonds

- Weakest bond = no sharing of electrons
- Attraction between polar molecules
 - Positive hydrogen atoms to negative oxygen atoms in a second molecule
- Physiological importance
 - Properties of water created by shapes of large complex molecules
 - Determined by folding due to hydrogen bonds

Van der Waals Forces

- Weak attractions between neutral atoms
- Fluctuations in electron density create polarity
- Only 1% as strong as a covalent bond
 - Folding of large molecules
 - Significant when two large surfaces meet

Mixtures and Water

- Substances physically but not chemically combined
- Mixtures in our bodies contain water
- Water 50-75% of body weight
 - Depends on age, sex, percentage of body fat, etc.