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INTERMOLECULAR FORCES OF ATTRACTION

Intermolecular Forces:

- Forces that attract molecules to other molecules. These include:
  - Hydrogen bonding
  - Dipole-dipole attraction
  - London dispersion forces

Relative Magnitudes of Forces:

- The types of bonding forces vary in their strength as a measured by average bond energy.

Hydrogen Bonding:

- Bonding between hydrogen and more electronegative neighboring atoms such as oxygen and nitrogen.

Polarity:

- A molecule, such as HF, that has a center of positive charge and a center of negative charge is said to be polar, or to have a dipole moment.

Dipole-Dipole Attraction:

- Attraction between oppositely charged regions of neighboring molecules.
- Dipole-dipole attraction in hydrogen chloride, a gas that is used to make hydrochloric acid.

London (Dispersion) Forces:

- The weakest of intermolecular forces, these forces are proportional to the mass of the molecule.
- These are the only forces of attraction between completely nonpolar molecule.
  - Large nonpolar molecules may have substantial dispersion forces, resulting in relatively high boiling points.
  - Small nonpolar molecules have weak dispersion forces and exist almost exclusively as gases.