Wednesday, May 31st

Melting Points and Boiling Points of Organic Compounds

In order to melt or boil an organic compound the temperature (and related heat energy) must be increased to affect or completely overcome the intermolecular forces between molecules.

affect → melting

overcome → boiling

The greater the intermolecular force (force between molecules) the harder it is to melt or boil and hense the higher the m.p. and b.p.

There are three types of molecular forces:

Name	Strength	Polarity	Special Conditions
van der Waals (or London force)	low	non-polar	C and H only atoms present
dipole interaction	medium	medium polar	C to O bonds, or C to N bonds
hydrogen bond	high	very polar	-OH groups (or -NH) stronger for Carboxylic Acid

Two factors to consider:

① The larger the molecule, the greater the van der Waal forces, the higher the m.p or b.p.

② The greater the polarity, the higher the m.p or b.p.

Both factors must be concidered.