Chemistry 20	Unit 1
Intermolecular Forces and those Effects	84 mins

Types of Intermolecular Forces (Covalent)

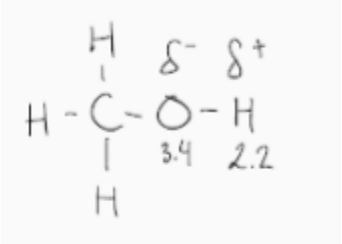
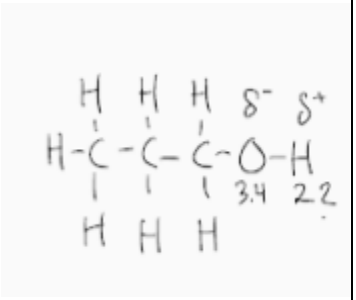
1) Van Der Waals Forces - Present between all molecules - Keeps fluids and solids together 2) Hydrogen Bonding - Special type of dipole-dipole - Hydrogen bonded to Fluorine, Oxygen and Nitrogen. - Results when a positively charged hydrogen atom is attracted to an adjacent atom's negative dipole, *as well as its lone pair electrons*.	Two types: - London Dispersion Forces - Between NON-POLAR substances. The e^- of one atom disperse the e^- of another atom creating a weak bond with the nucleus - Bigger molecules = bigger London - Dipole-Dipole - Polar molecules will bond δ^- to δ^+ 

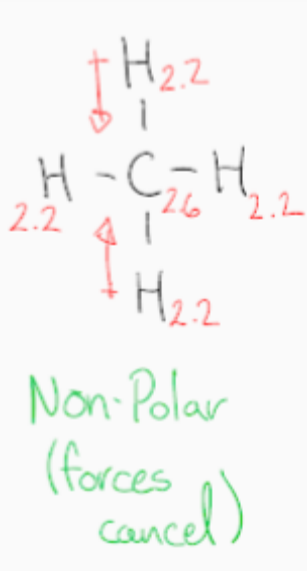
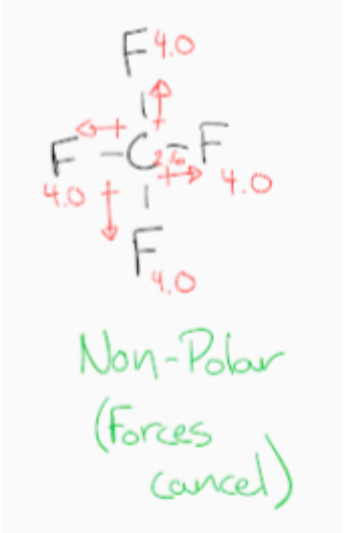
Effect on Intermolecular Bonds on Physical Properties

- As molecular mass increases the # of e^- increases therefore the Van Der Waals forces increase. - Hydrogen bonding will greatly increase the B.P. and M.P., and is the exception to this "rule"	- This increase in forces will cause the Boiling and Melting points of the molecules increase when compared to molecules of similar structure.

Examples

What has the higher Boiling Point?

$CH_3OH_{(l)}$	$CH_3CH_2CH_2OH$
	 ** Higher B.P. (heavier) - More e^- - Stronger London - Forces

$CH_{4(g)}$	$CF_{4(g)}$
	 *** Higher B.P. - Heavier molecule