11/2 Today: intermolecular forces section 8.6
11/4 Sunday: Problem club with Ali 7-8:30
11/5 Monday: Start chapter 9
11/6 Tuesday: Expt 10

total # of group	possible ABE	Angles	hybridization	Name	Polar?
2	AB_2	180°	sp	linear	no
3	AB_3	120°	sp^2	trig plane	no
	AB_2E	<120°	sp^2	bent	yes
4	AB_4	109°	sp^3	tetrahedral	no
	AB_3E	<109°	sp^3	trig pyramid	yes
	AB_2E_2	<109°	sp^3	bent	yes

"essentially non-polar"

C-H $\Delta EN < 0.5$
2.5 2.1

$:\ddot{S}=C=\ddot{O}:$ AB_2 (ABB') 180° linear polar
2.5 2.5 3.5

↑ indicates there are 2 B groups but they are different

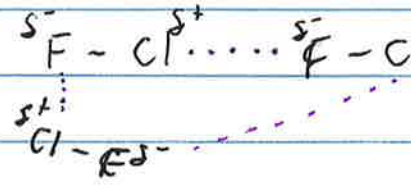
Pure substances

- elemental
  - metals: metal-metal bonds (always solid)
  - non-metals: (s, l, or g)
- compound
  - ionics: (lattice energy) (always solid)
  - covalent molecular: (s, l, or g)

Dipole - Dipole forces

· If a molecules is polar, the forces between molecules are called dipole-dipole forces

look for E groups



* keeps substance as liquid or solid

* 3-4 kJ/mol each

$F_2(l) \rightarrow F_2(g)$

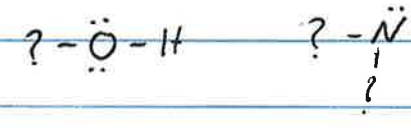
corresponds to the breakage of all intermolecular forces

		bp
F_2	nonpolar	85k
Br_2	nonpolar	332k
BrF	polar	293K

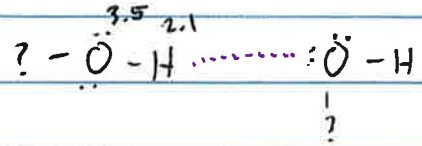
↑ creates stronger intermolecular forces

Hydrogen Bonding

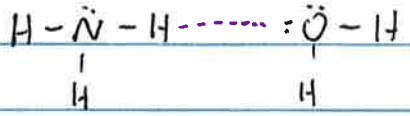
· intermolecular force that is super strong dipole-dipole force

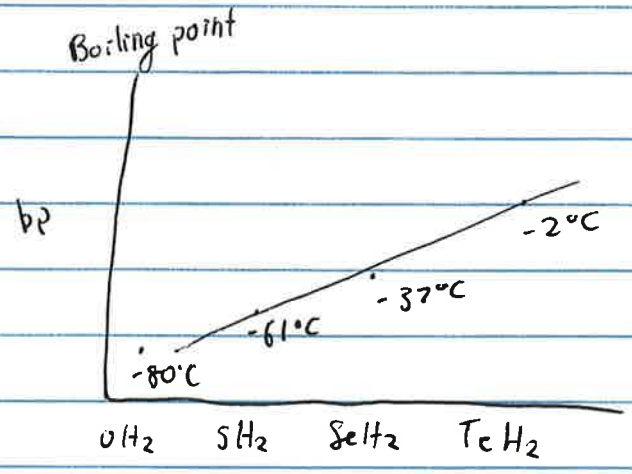


* 10-40 kJ/mol



· Solutions · $NH_3(aq)$

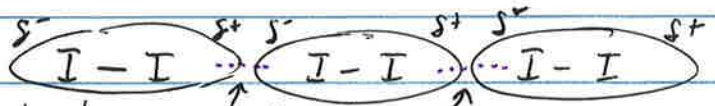




London - dispersion forces

* 1 - 10 kJ/mol

		bp
F_2 (g)	nonpolar	85k
Cl_2 (g)	nonpolar	239k
Br_2 (l)	nonpolar	332k
I_2 (s)	nonpolar	458k



· Instantaneous dipoles

↳ they will change in the next instant:

London - dispersion forces $\propto$ MM

· if MM > 300 g/mol, the substance is a solid at RT