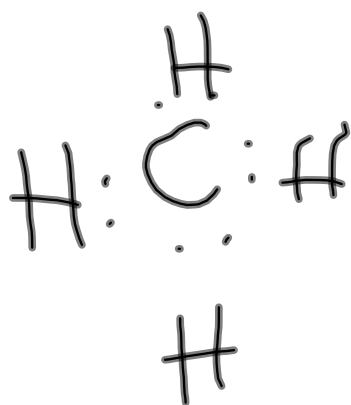
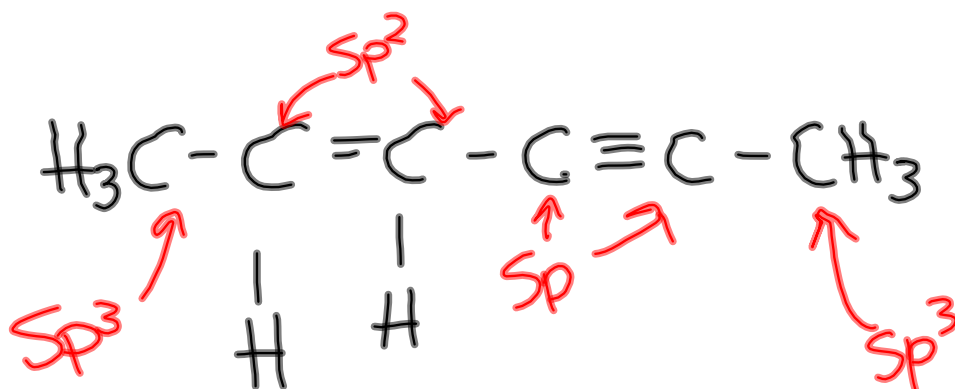


## Homework - Worksheet



VSEPR Theory



## Attraction Between Molecules

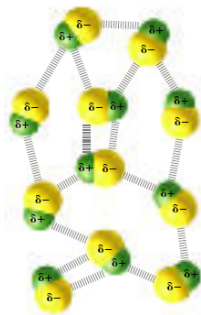
Intermolecular forces are weaker than both ionic and covalent bonds.

### Van der Waals Forces

- Weakest attractions between molecules.
- Can be separated into two categories:

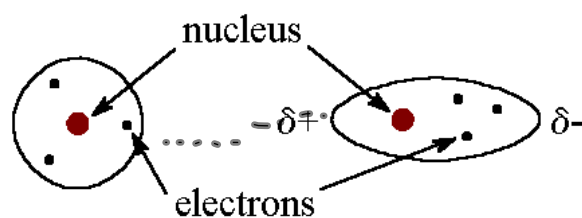
### Dipole Interactions

Electrical attraction between oppositely charged regions of polar molecules.

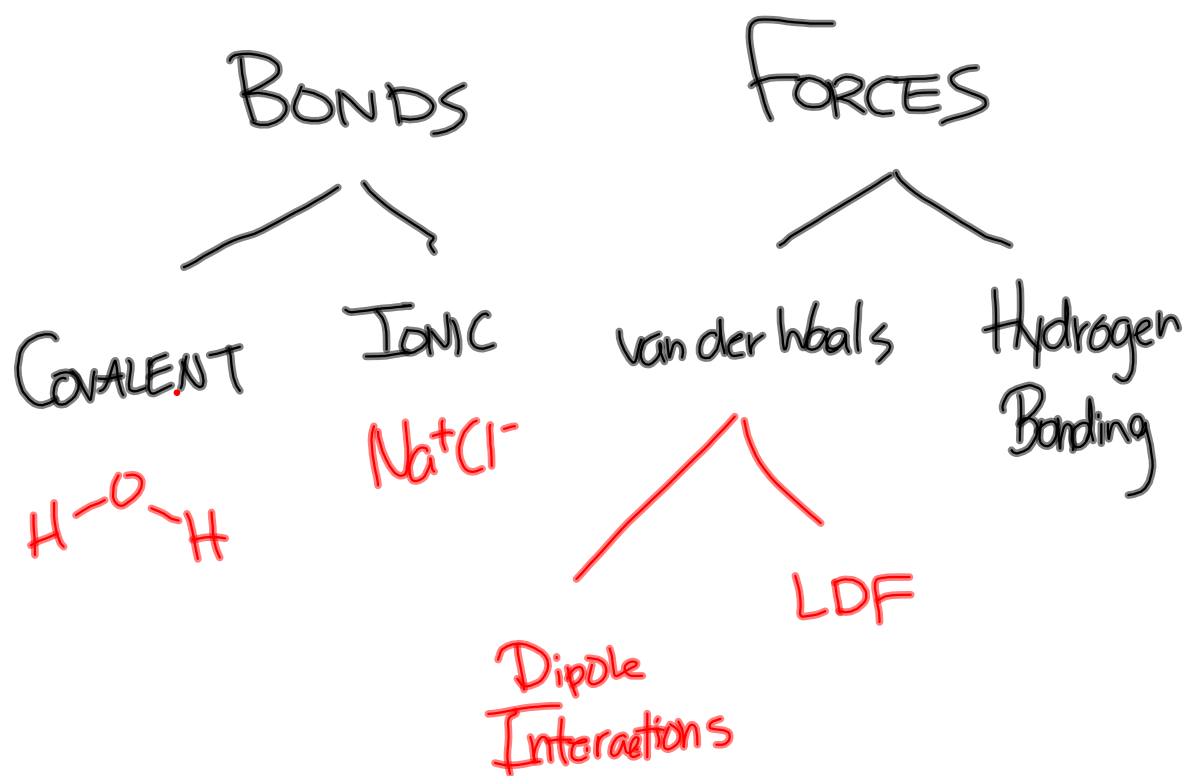


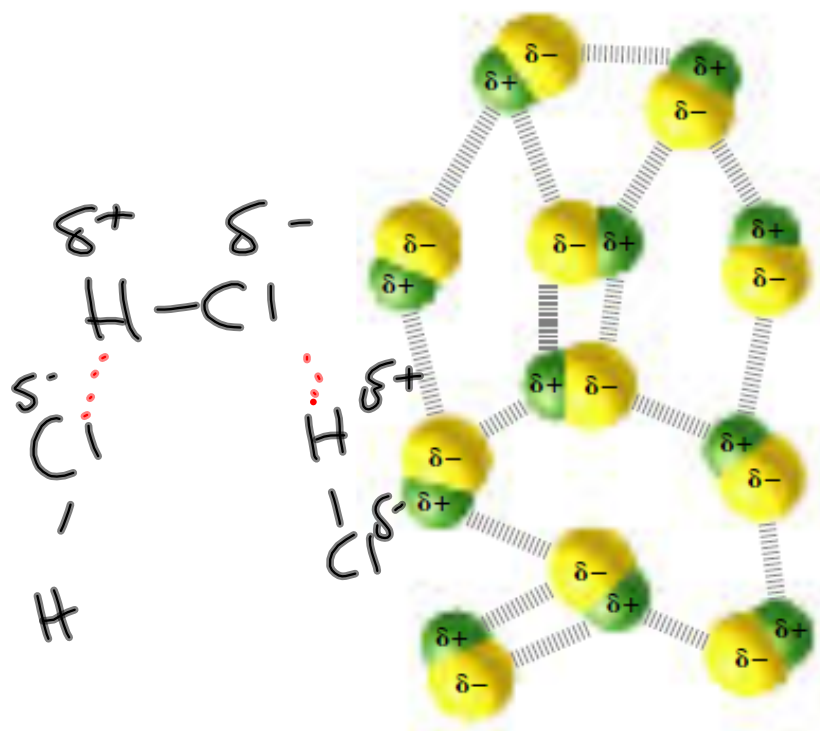
### Dispersion Forces (London Dispersion Forces)

- weakest of all molecular interactions
- occur between even non-polar molecules
- caused by the motion of electrons
  - when moving electrons are momentarily on one side of a molecule, the electrons of the neighbouring molecule will move to the opposite side, causing a weak attraction.

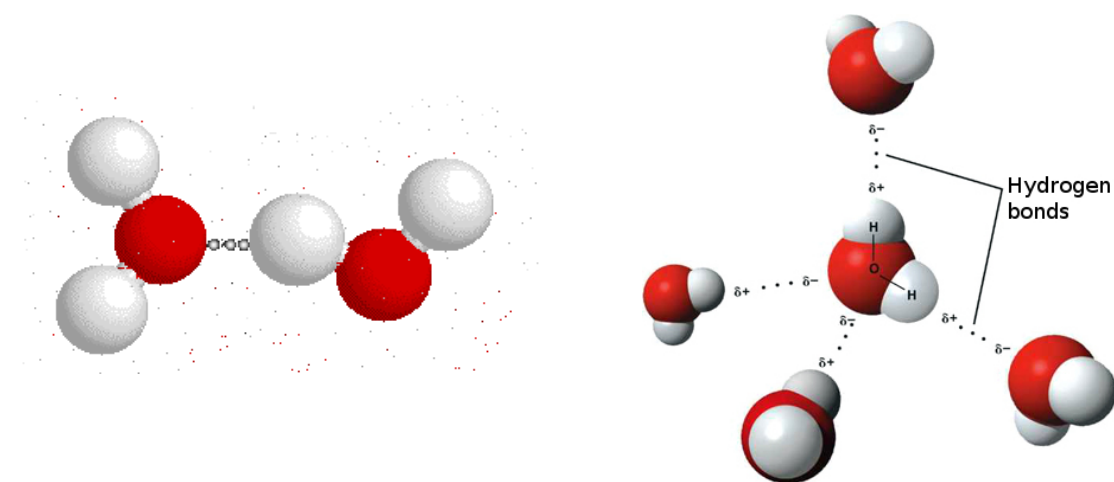


Nonpolar





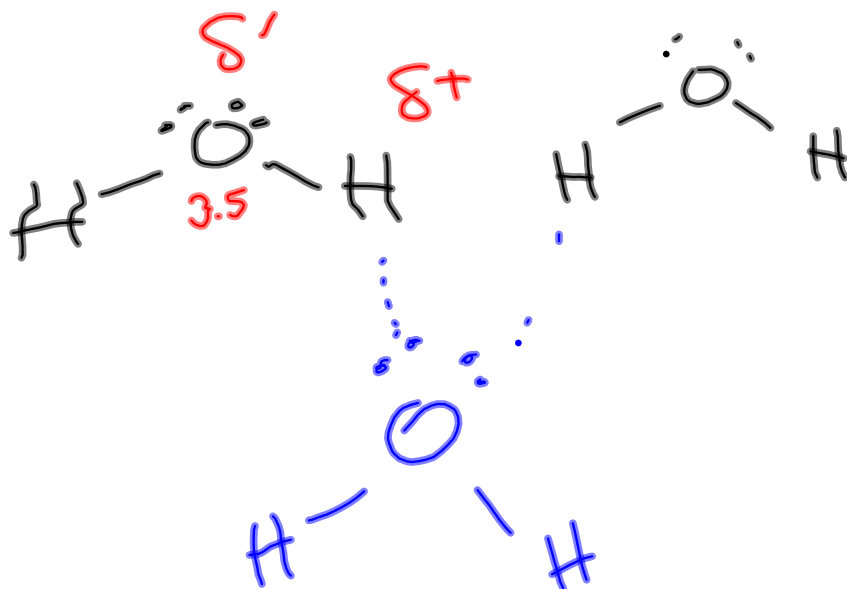
## Hydrogen Bonds

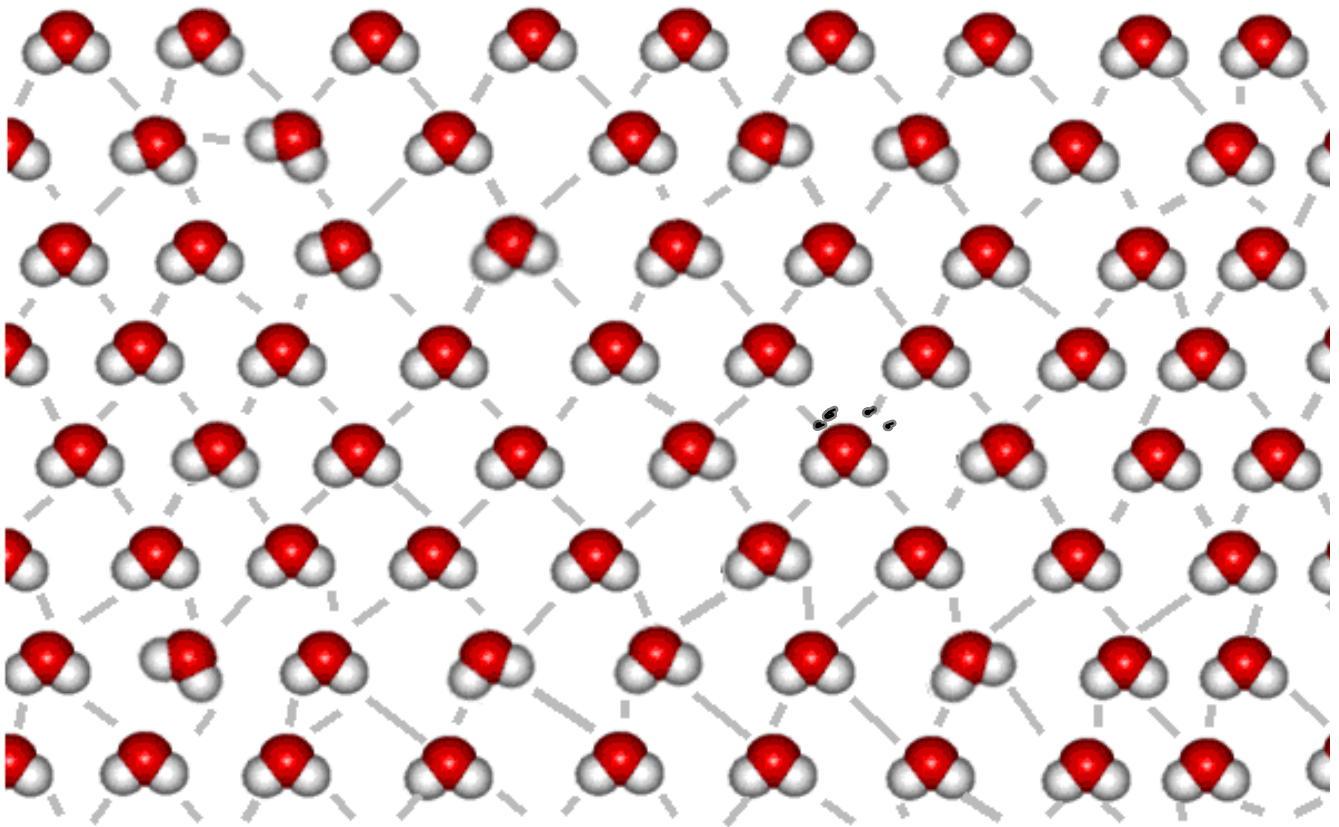


### Hydrogen Bonds

Strong attractive forces in which a hydrogen covalently bonded to a very electronegative atom (O, N, F), is weakly bonded to an unshared electron pair of another electronegative atom.

- strongest intermolecular force
- not as strong as an ionic or covalent bond





## Hydrogen Bonding in Water

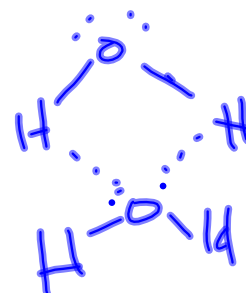
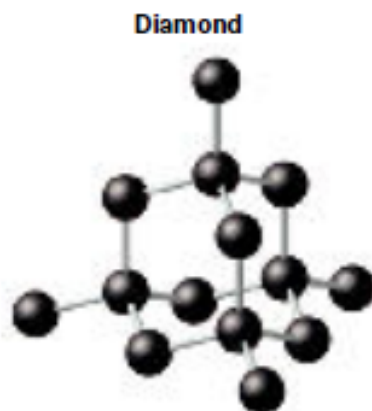
- Hydrogen bonding causes many molecules to be attracted, meaning H<sub>2</sub>O is very dense.
- High density results in water being a liquid at room temperature. Requires a great deal of energy to separate the particles and disrupt the attraction.

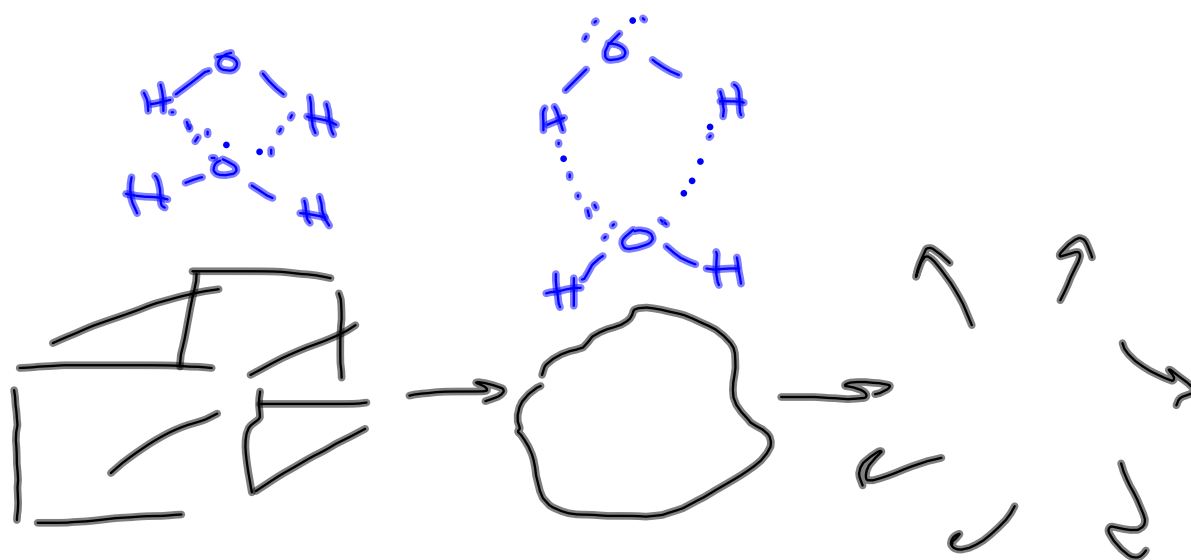


## Network Solids

solids in which all of the atoms are covalently bonded to each other

- very stable substances with very high melting and boiling point
- melting requires breaking covalent bonds throughout the solid





# Homework

**p. 244 #32-38**

**p. 207-209 #48, 49, 60, 63, 65, 75, 78**

**p. 247-249 #39-65, 72, 73, 75, 76**