

Review

Ionic Crystals - packing

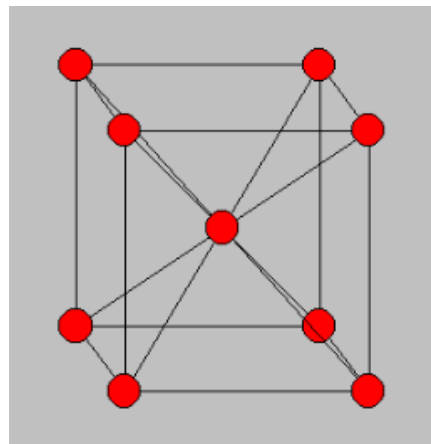
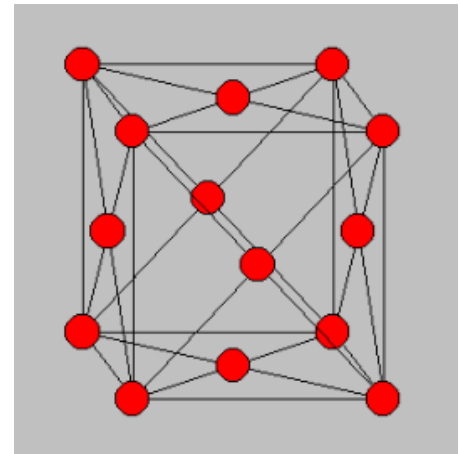
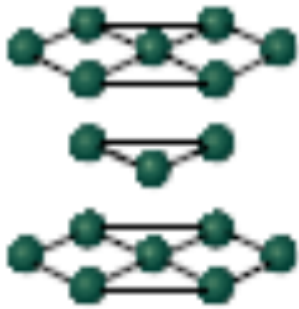
Metallic bonding - cations
'sea of electrons'

Packing arrangements

Body-Centered Cubic

Face-Centered Cubic

Hexagonal Close-Packed



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Electronegativity

Electronegativity

The ability of an atom in a compound to attract electrons

Trends

- Within a group, electronegativity increase from bottom to top
- Within a period, electronegativity increases from left to right

Ex: F

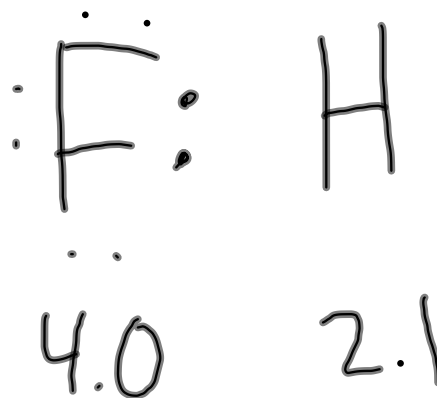
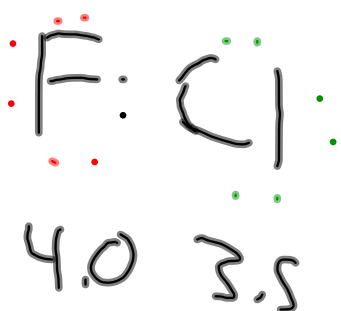


Table 6.2**Electronegativity Values for Selected Elements**

H 2.1						
Li 1.0	Be 1.5	B 2.0	C 2.5	N 3.0	O 3.5	F 4.0
Na 0.9	Mg 1.2	Al 1.5	Si 1.8	P 2.1	S 2.5	Cl 3.0
K 0.8	Ca 1.0	Ga 1.6	Ge 1.8	As 2.0	Se 2.4	Br 2.8
Rb 0.8	Sr 1.0	In 1.7	Sn 1.8	Sb 1.9	Te 2.1	I 2.5
Cs 0.7	Ba 0.9	Tl 1.8	Pb 1.9	Bi 1.9		

Covalent Bond

Recall that a **covalent bond** is a shared pair of electrons between two nonmetal atoms.

- Electrons are attracted to the positive nuclei
- Each atom wants to reach the electron configuration of a noble gas (ns^2np^6 - Octet Rule)

Single Covalent Bond

Two atoms held together by sharing a pair of electrons

Molecular Formula



Electron Dot Structure



Structural Formula

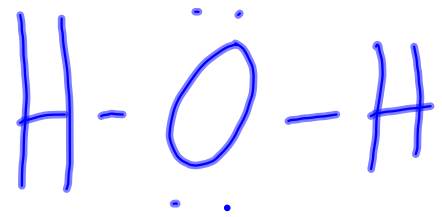
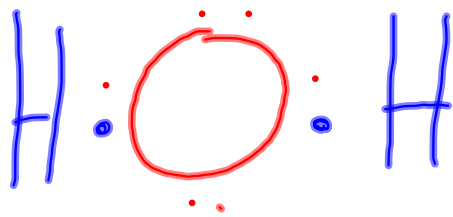




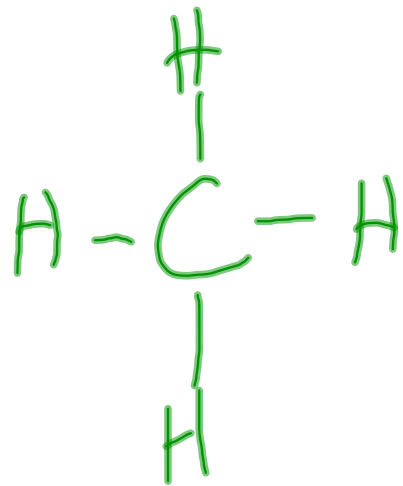
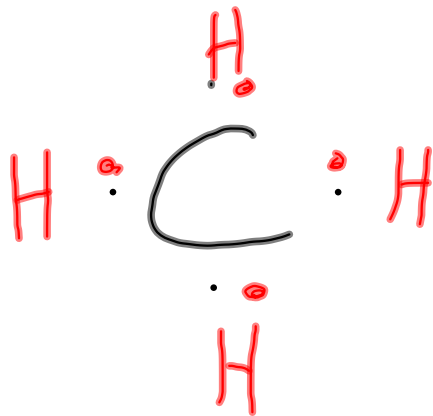
Lone pair (unshared pair)

A pair of valence electrons not shared between atoms

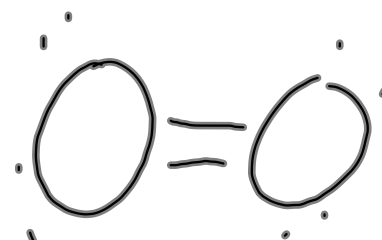
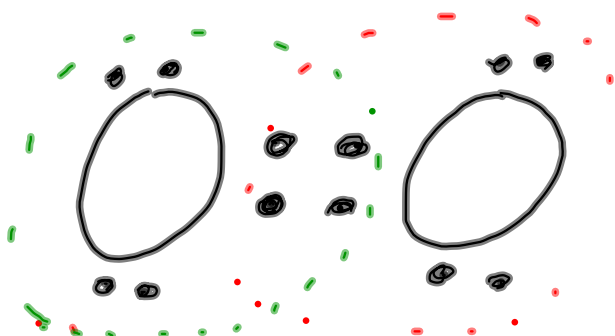
H₂O



CH₄



O₂



Double covalent bond

Two shared pairs of electrons



Triple covalent bond

Three shared pairs of electrons



CO₂

Homework

p. 220 #7, 8