

Notes 3/16: Bonding

3 types: Covalent - nonmetals, share e⁻, molecules

PbS Ionic - metal + NM, e⁻ transfer, crystal lattice

S₈ S₄ Metallic - metals "sea of electrons" solid metals

Electronegativity (EN) - tendency of an atom to attract valence e⁻s

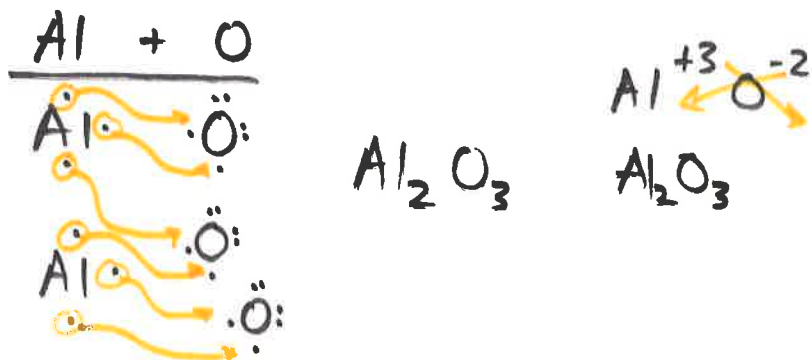
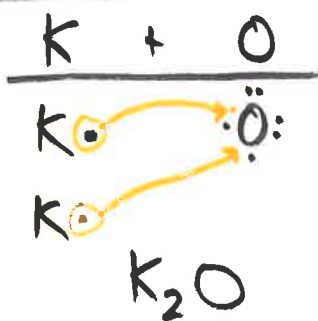
$\frac{\text{Most}}{\text{F}} \longrightarrow \frac{\text{Least}}{\text{Cs}}$

4.0 0.7

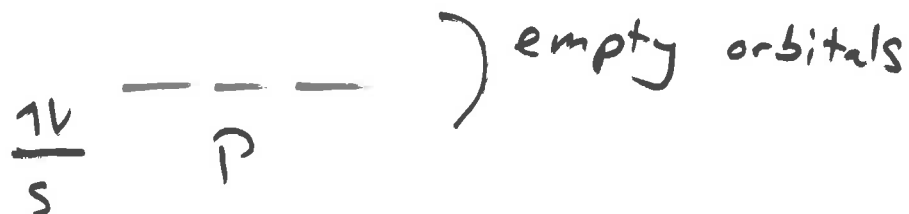
Pauling Scale

<u>EN Diff</u>	<u>Bond Type</u>	<u>Ex</u>	<u>Meaning</u>
0.0	Nonpolar <u>Covalent</u>	Cl ₂ O ₂ H ₂	bond e ⁻ shared equally
0.1 - 1.6	Polar <u>Covalent</u>	\longleftrightarrow H-Cl 2.1 3.0 <u>0.9</u>	e ⁻ shared unequally
<u>1.7+</u>	<u>Ionic</u>	Na \ominus \longrightarrow $\cdot\ddot{\text{Cl}}\cdot$ (Na ⁺) (Cl ⁻) (Na ⁺) (Cl ⁻) (Na ⁺) (Cl ⁻) (Na ⁺) (Cl ⁻)	e ⁻ transfer

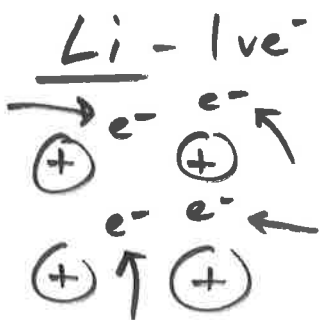
Ionics



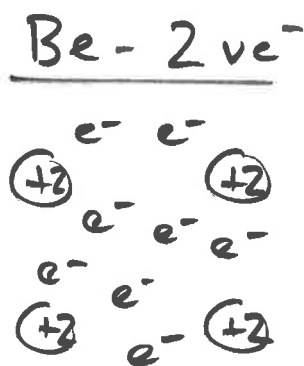
Metallic Bonding - metals have few valence e^-



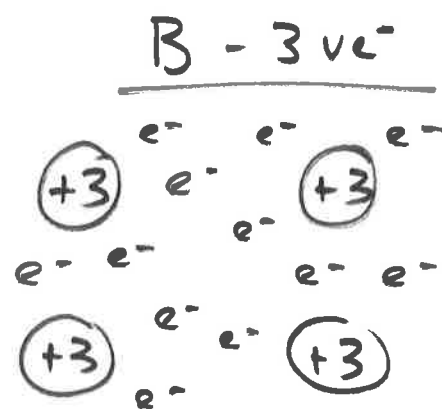
- metals have low EN - weak hold on ve^-
- ve^- are delocalized - jump from nuclei to nuclei ("sea of electrons")
- ve^- act like glue, holding nuclei together



- Small amt of glue



- more glue



- most glue

