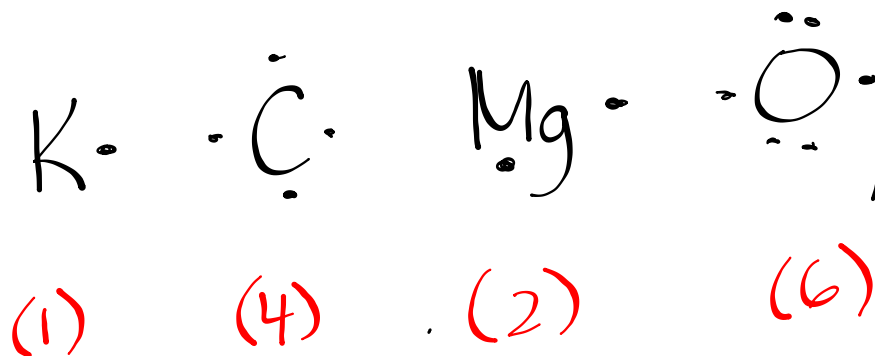
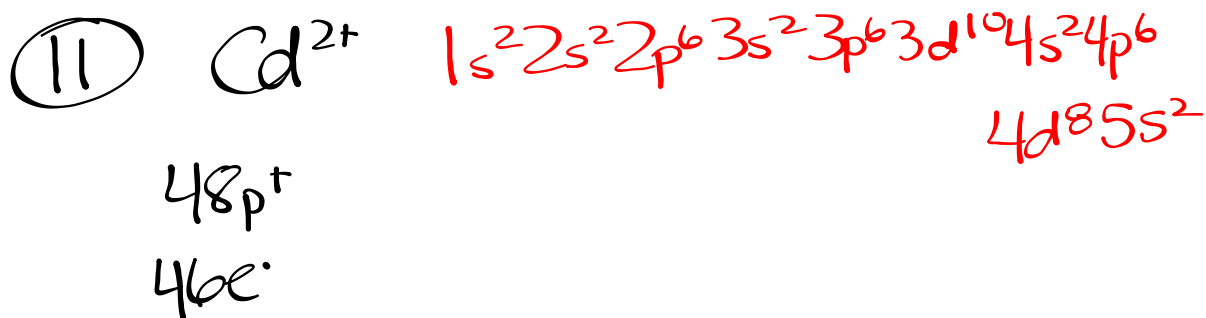
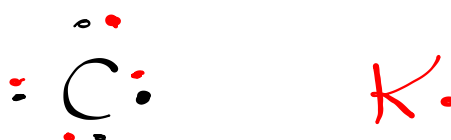


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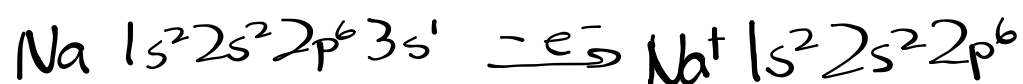
Octet Rule



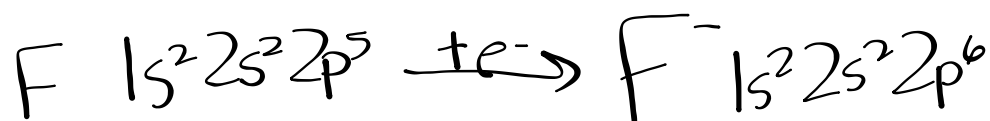
Valence electrons

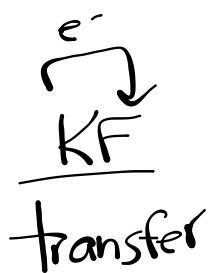
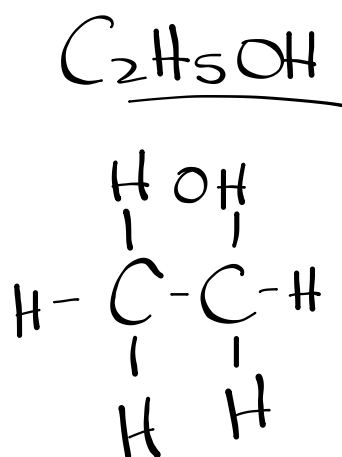
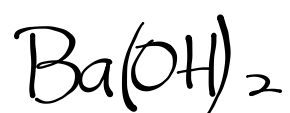


Formation of cations



Formation of anions





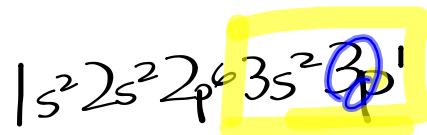
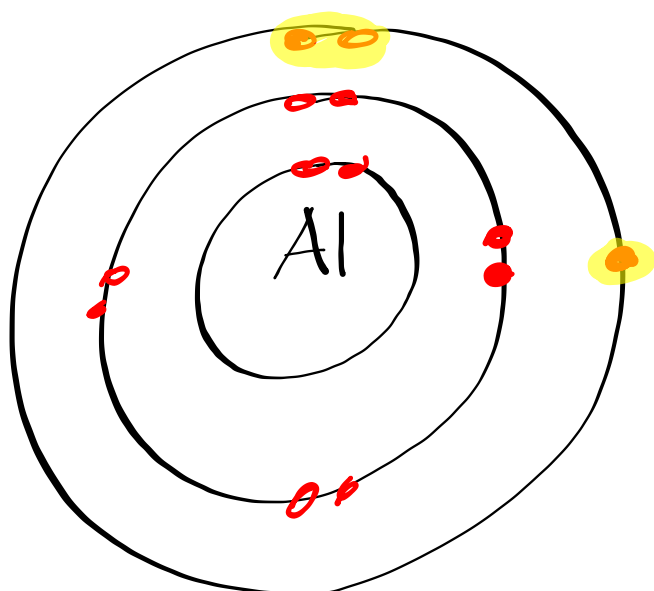
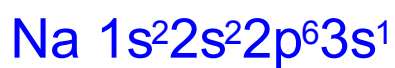


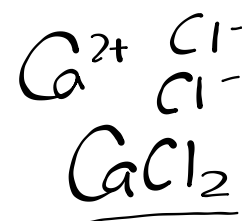
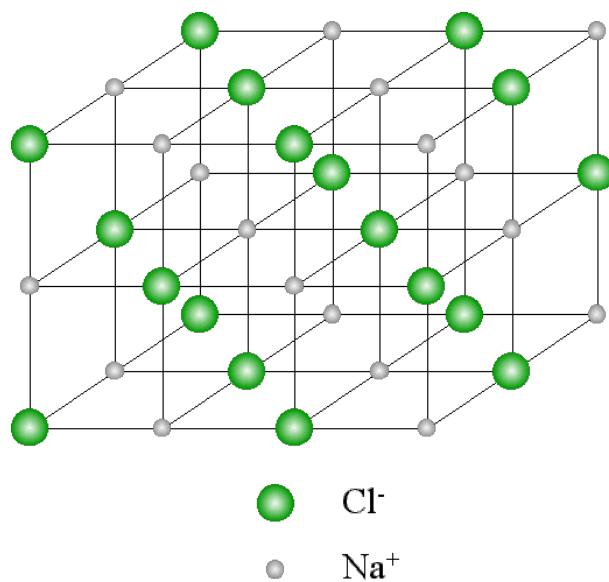
Table 7.1

Electron Dot Structure of Some Group A Elements

Period	Group							
	1A	2A	3A	4A	5A	6A	7A	8A
1	H·							He·
2	Li·	Be·	B·	C·	N·	O·	F·	Ne·
3	Na·	Mg·	Al·	Si·	P·	S·	Cl·	Ar·
4	K·	Ca·	Ga·	Ge·	As·	Se·	Br·	Kr·



Crystal Structure of Ionic Solids



Metallic Bonds

Metals are made of closely packed cations rather than neutral atoms.

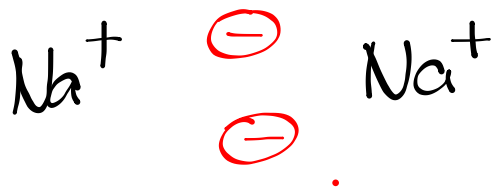
In metals, the valence electrons drift freely from one part of the metal to another.

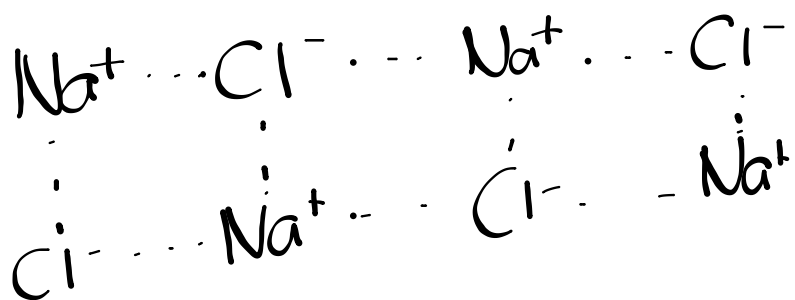
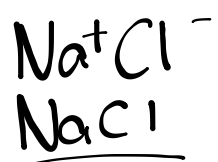
Metallic bonds consist of the free-floating valence electrons for the positively charged metal ions.

Ductility and Malleability

Metals - cations insulated by 'sea' of electrons

Ionic compounds - positive ions pushed together and repel, causing crystal to shatter.



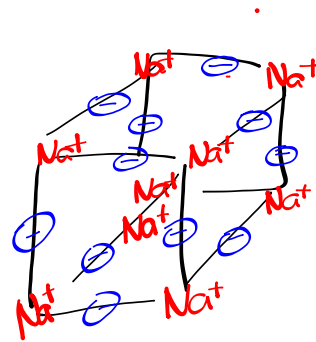
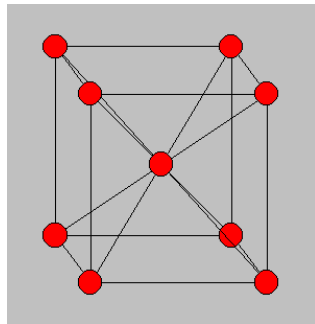


Crystalline Structure of Metals

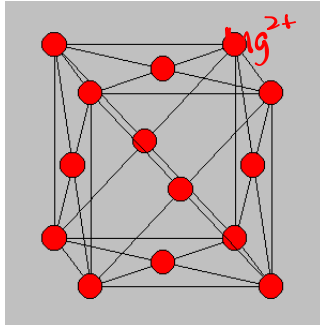
Metals are arranged in very compact and orderly patterns.

Closely-Packed Arrangements:

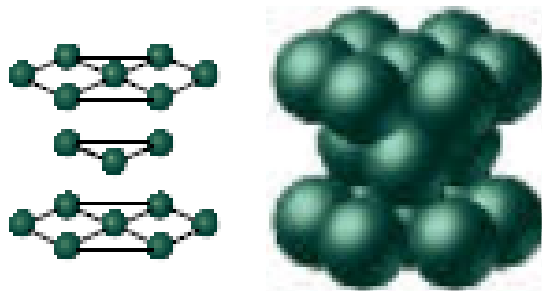
- Body-Centered Cubic



- Face-Centered Cubic



- Hexagonal Close-Packed



Hexagonal close-packed

Homework

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