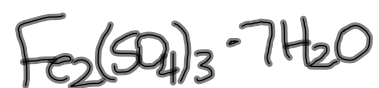
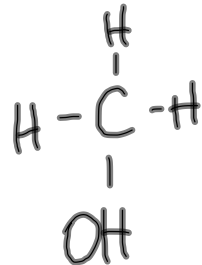


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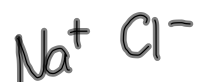


Ionic

transfer  
 $m \rightarrow nm$



attraction



Covalent

share  $e^-$ 's

nm, nm



9. a) Ca  $\rightarrow$  lose 2

7. a) K  $\rightarrow$  1  
O  $\rightarrow$  6

11. Cd<sup>2+</sup>  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 4d^8$   
46  $5s^2$

10. K<sup>+</sup> potassium ion

Octet Rule

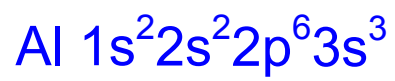
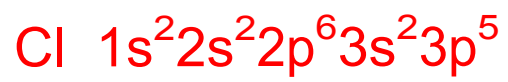
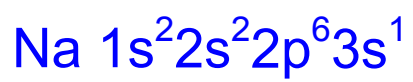
Valence electrons

Formation of cations

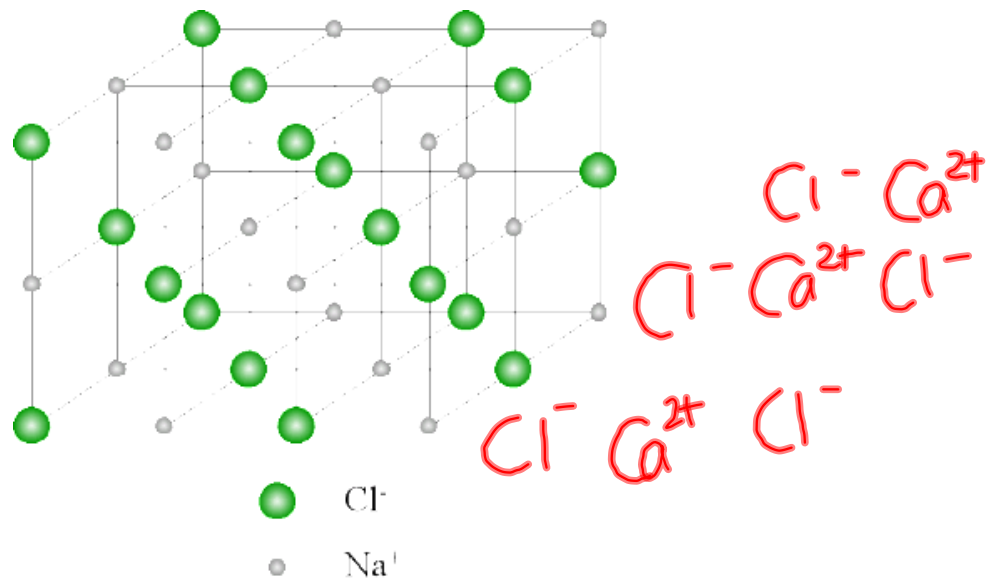
Formation of anions

**Table 7.1****Electron Dot Structure of Some Group A Elements**

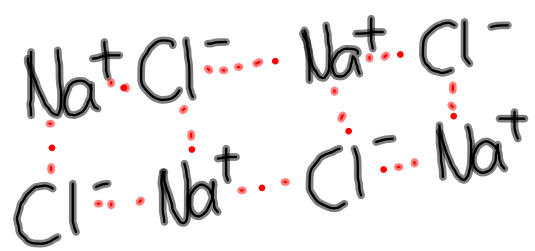
Period	Group							
	1A	2A	3A	4A	5A	6A	7A	8A
1	H·							He·
2	Li·	Be·	B·	C·	N·	O·	F·	Ne·
3	Na·	Mg·	Al·	Si·	P·	S·	Cl·	Ar·
4	K·	Ca·	Ga·	Ge·	As·	Se·	Br·	Kr·



# Crystal Structure of Ionic Solids



NaCl



# 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.

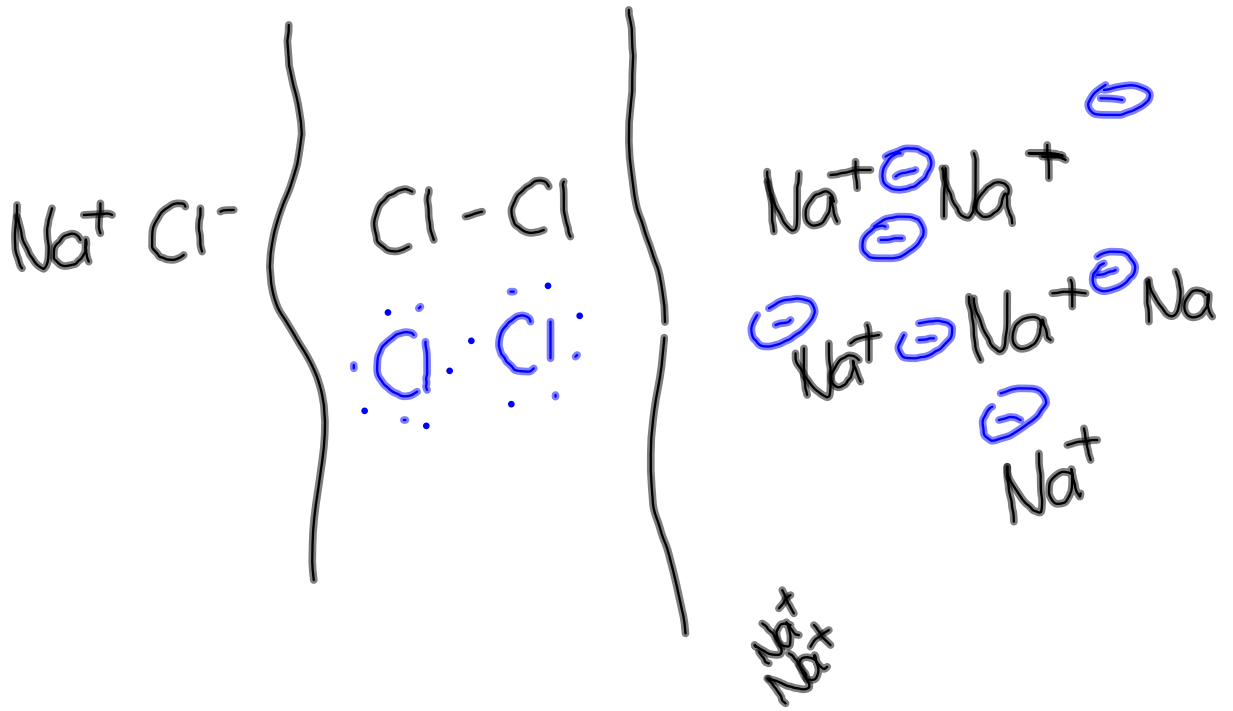
Metallic bonds consist of the free-floating valence electrons for the positively charged metal ions.

## Ductility and Malleability

Metals - cations insulated by 'sea' of electrons

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



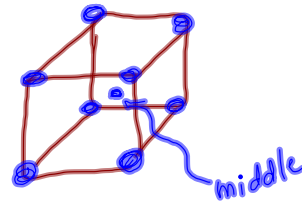
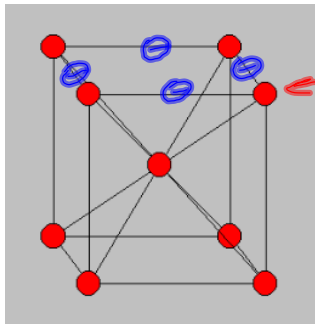


# Crystalline Structure of Metals

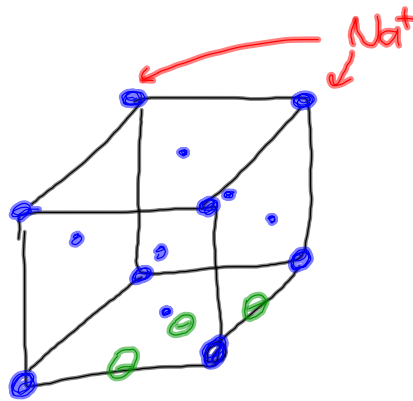
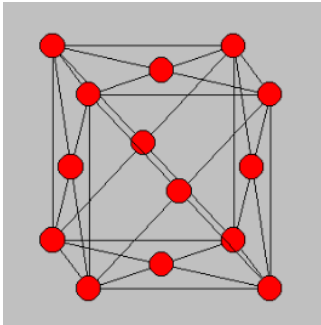
Metals are arranged in very compact and orderly patterns.

## Closely-Packed Arrangements:

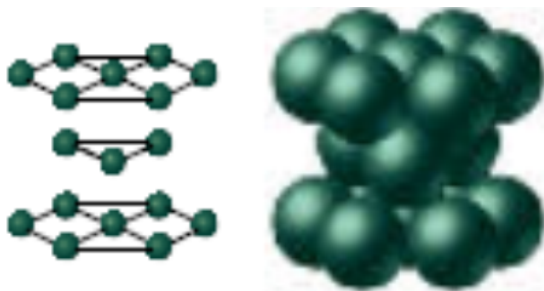
- Body-Centered Cubic



- Face-Centered Cubic



- Hexagonal Close-Packed



Hexagonal close-packed

# Homework

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