

Worksheet

8) N_2H_4 - dinitrogen tetrahydroxide

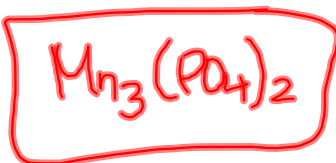
OH^-

dinitrogen tetrahydride

13) manganese(II) phosphate - $Mg_3(PO_4)_2$

↳ magnesium

$Mn^{2+} PO_4^{3-}$

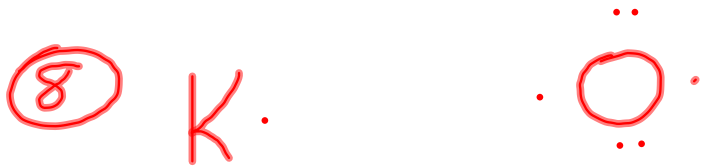


18) iron(III) oxide - FeO_3

$Fe^{3+} O^{2-}$



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$Ca \rightarrow$ lose 2

$C \rightarrow 4$ share 4

$F \rightarrow 7$

share 1

$K \rightarrow K^+ \rightarrow$ potassium ion

$F \rightarrow F^- \rightarrow$ fluoride ion

Octet Rule - 8

Valence electrons - highest energy level

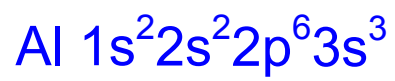
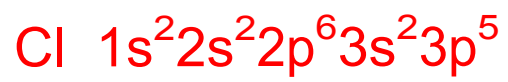
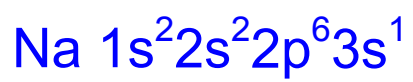
Formation of cations $\text{Na} \rightarrow \text{Na}^+ + e^-$
 $1s^2 2s^2 2p^6 3s^1 \rightarrow 1s^2 2s^2 2p^6$

Formation of anions

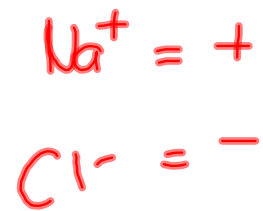
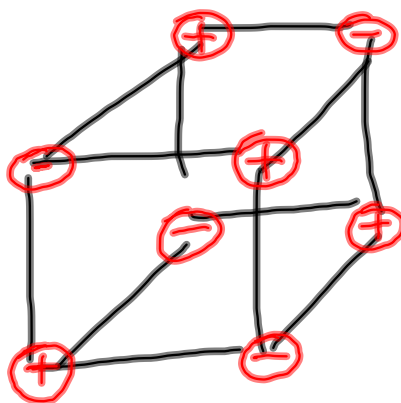
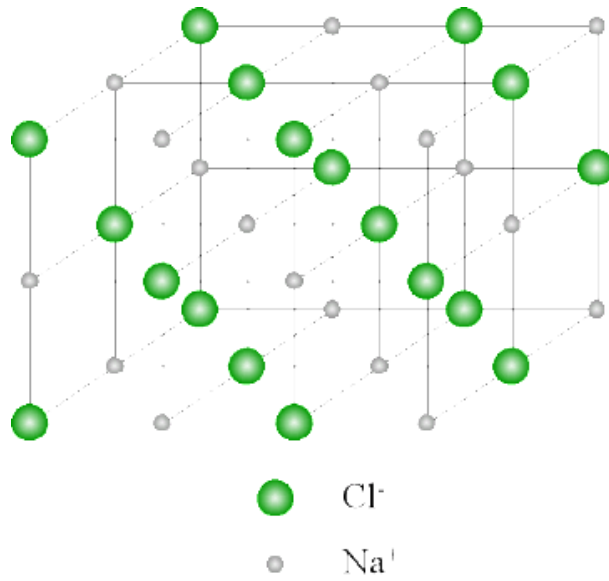
$1s^2 2s^2 2p^5 \rightarrow 1s^2 2s^2 2p^6$
 $\text{F} + e^- \rightarrow \text{F}^-$

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

Na⁺ Cl⁻

Cl⁻ Na⁺ .. Cl⁻ .. Na⁺

Na⁺ .. Cl⁻ .. Na⁺ .. Cl⁻

Metallic Bonds

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

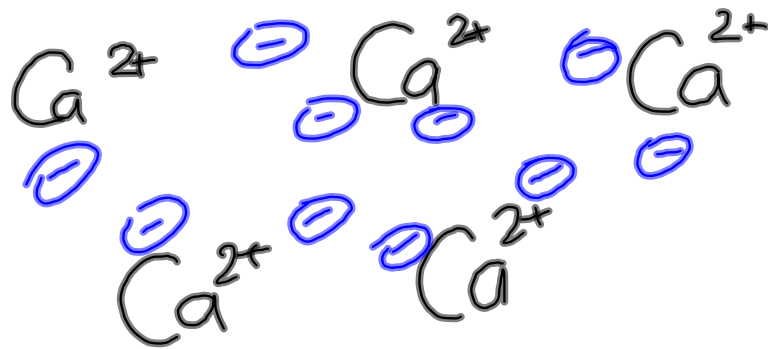
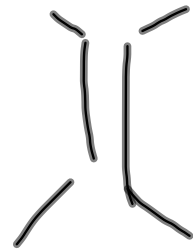
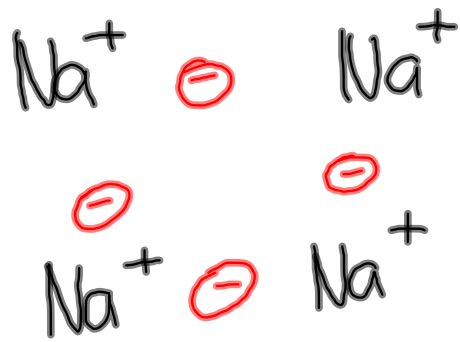
In metals, the valence electrons drift freely from one part of the metal to another.

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.

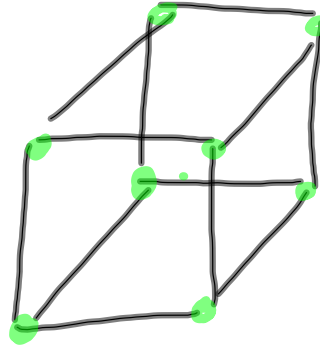
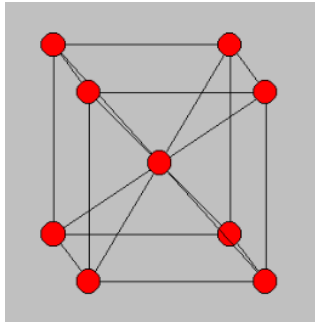


Crystalline Structure of Metals

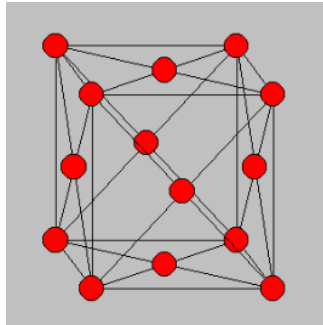
Metals are arranged in very compact and orderly patterns.

Closely-Packed Arrangements:

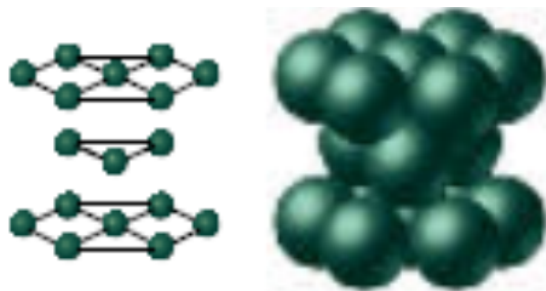
- Body-Centered Cubic



- Face-Centered Cubic



- Hexagonal Close-Packed



Hexagonal close-packed

Homework

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