

## Ionic Charges and Chemical Families Practice

Group 1: Alkali Metals					
Element Name	# Valence Electrons	Lewis Dot Diagram	Charge on Atom	Ion Symbol	Diagram of Stable Ion
Lithium	1	Li·	1 <sup>+</sup>	Li <sup>+</sup>	[Li] <sup>+</sup>
Sodium	1	Na·	1 <sup>+</sup>	Na <sup>+</sup>	[Na] <sup>+</sup>
Potassium	1	K·	1 <sup>+</sup>	K <sup>+</sup>	[K] <sup>+</sup>
Rubidium	1	Rb·	1 <sup>+</sup>	Rb <sup>+</sup>	[Rb] <sup>+</sup>
Cesium	1	Cs·	1 <sup>+</sup>	Cs <sup>+</sup>	[Cs] <sup>+</sup>
Francium	1	Fr·	1 <sup>+</sup>	Fr <sup>+</sup>	[Fr] <sup>+</sup>

Group 2: Alkaline Earth Metals					
Element Name	# Valence Electrons	Lewis Dot Diagram	Charge on Atom	Ion Symbol	Diagram of Stable Ion
Beryllium	2	Be·	2 <sup>+</sup>	Be <sup>2+</sup>	[Be] <sup>2+</sup>
Magnesium	2	Mg·	2 <sup>+</sup>	Mg <sup>2+</sup>	[Mg] <sup>2+</sup>
Calcium	2	Ca·	2 <sup>+</sup>	Ca <sup>2+</sup>	[Ca] <sup>2+</sup>
Strontium	2	Sr·	2 <sup>+</sup>	Sr <sup>2+</sup>	[Sr] <sup>2+</sup>
Barium	2	Ba·	2 <sup>+</sup>	Ba <sup>2+</sup>	[Ba] <sup>2+</sup>
Radium	2	Ra·	2 <sup>+</sup>	Ra <sup>2+</sup>	[Ra] <sup>2+</sup>

Group 17: Halogens					
Element Name	# Valence Electrons	Lewis Dot Diagram	Charge on Atom	Ion Symbol	Diagram of Stable Ion
Fluorine	7	·F·	1 <sup>-</sup>	F <sup>-</sup>	[:F:] <sup>-</sup>
Chlorine	7	·Cl·	1 <sup>-</sup>	Cl <sup>-</sup>	[:Cl:] <sup>-</sup>
Bromine	7	·Br·	1 <sup>-</sup>	Br <sup>-</sup>	[:Br:] <sup>-</sup>
Iodine	7	·I·	1 <sup>-</sup>	I <sup>-</sup>	[:I:] <sup>-</sup>
Astatine	7	·At·	1 <sup>-</sup>	At <sup>-</sup>	[:At:] <sup>-</sup>

Group 18: Noble Gases			
Element Name	# Valence Electrons	Lewis Dot Diagram	Will Atom Form an Ion?
Helium	2	He $\cdot$	no
Neon	8	:Ne:	no
Argon	8	:Ar:	no
Krypton	8	:Kr:	no
Xenon	8	:Xe:	no
Radon	8	:Rn:	no

← 1A our course

Describe the pattern that you see in the Lewis Dot Diagrams as you go left to right across the Periodic Table (skipping the transition metals).

As you go left to right across the periodic table you add one more valence electron (1, 2, 3, 4, 5, 6, 7, 8)

Describe the pattern of ion charges as you go left to right across the Periodic Table.

1<sup>+</sup>, 2<sup>+</sup>, 3<sup>+</sup>, 4<sup>+</sup>, 3<sup>-</sup>, 2<sup>-</sup>, 1<sup>-</sup>, 0

Metallic Elements					
Element Name	# Valence Electrons	Lewis Dot Diagram	Charge on Atom	Ion Symbol	Diagram of Stable Ion
Sodium	1	Na $\cdot$	1 <sup>+</sup>	Na <sup>+</sup>	[Na] <sup>+</sup>
Magnesium	2	Mg $\cdot$	2 <sup>+</sup>	Mg <sup>2+</sup>	[Mg] <sup>2+</sup>
Aluminum	3	Al $\cdot$	3 <sup>+</sup>	Al <sup>3+</sup>	[Al] <sup>3+</sup>

Nonmetallic Elements					
Element Name	# Valence Electrons	Lewis Dot Diagram	Charge on Atom	Ion Symbol	Diagram of Stable Ion
Nitrogen	5	·N $\cdot$	3 <sup>-</sup>	N <sup>3-</sup>	[N] <sup>3-</sup>
Oxygen	6	·O:	2 <sup>-</sup>	O <sup>2-</sup>	[O] <sup>2-</sup>
Fluorine	7	·F:	1 <sup>-</sup>	F <sup>-</sup>	[F] <sup>-</sup>

What charges do metals tend to form? +

What charges do nonmetals tend to form? -