

THE PERIODIC TABLE

Periodic Table by Page Views
February 2009



^ = one-time spike in page views which may have brought article into a higher category
= article title is ambiguous; article may have incurred significant 'accidental' views

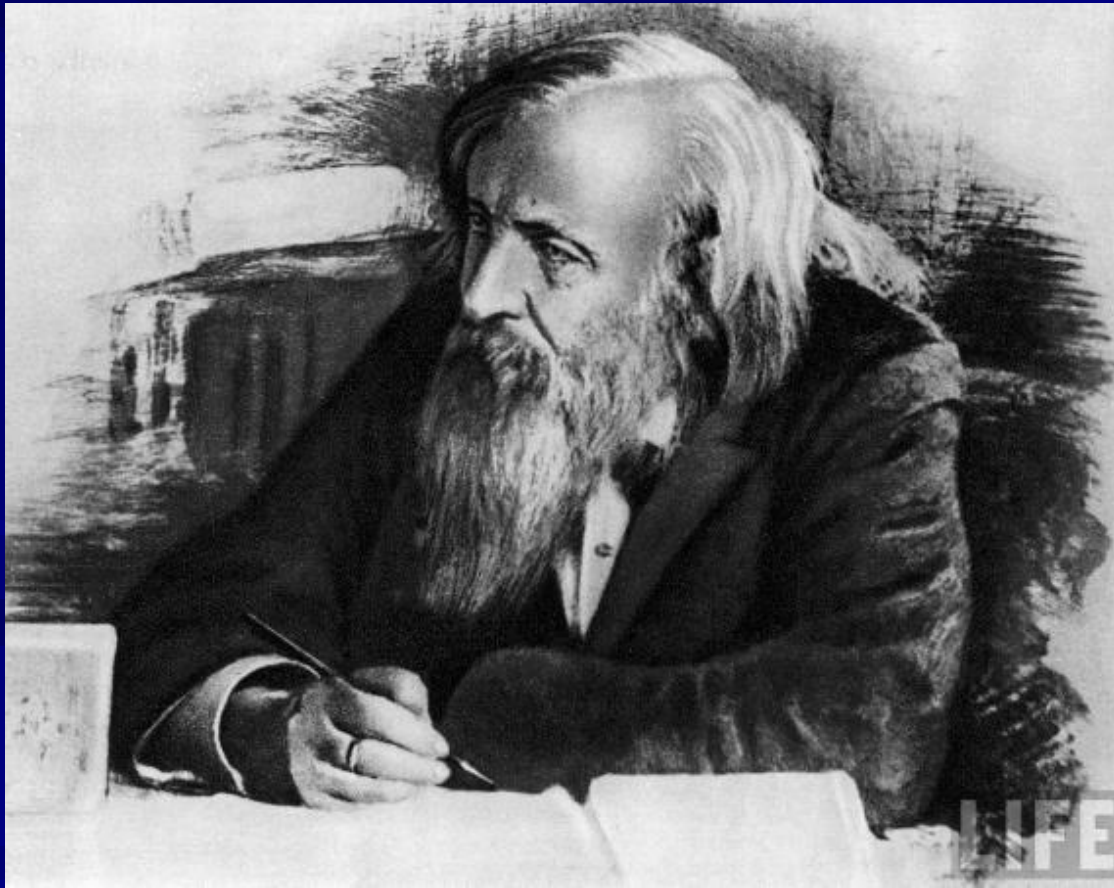
1 H Hydrogen																2 He Helium					
3 Li Lithium	4 Be Beryllium															5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon
11 Na Sodium	12 Mg Magnesium															13 Al Aluminium	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton				
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon				
55 Cs Caesium	56 Ba Barium	57* La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	# 77 ^ Ir Iridium	# 78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 ^ Tl Thallium	# 82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon				
87 Fr Francium	88 Ra Radium	89** Ac Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Uub Ununbium	113 Uut Ununtrium	114 Uuq Ununquadium	115 ^ Uup Ununpentium	116 Uuh Ununhexium	117 Uus Ununseptium	118 Uuo Ununoctium				

* 58 Ce Cerium	59 Pr Praseodymium	60 ^ Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
** 90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 ^ Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 ^ Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 ^ Lr Lawrencium

- The periodic table of the chemical elements is a *tabular* method of displaying the *chemical elements*.

B Boron 10.811 $1s^2 2s^2 2p^1$	C Carbon 12.0111 $1s^2 2s^2 2p^2$	N Nitrogen 14.0067 $1s^2 2s^2 2p^3$	O Oxygen 15.999 $1s^2 2s^2 2p^4$	F Fluorine 18.998 $1s^2 2s^2 2p^5$	Ar Argon 39.948 $(Ne) 3s^2 3p^6$
Al Aluminum 26.9815 $(Ne) 3s^2 3p^1$	Si Silicon 28.086 $(Ne) 3s^2 3p^2$	P Phosphorus 30.9738 $(Ne) 3s^2 3p^3$	S Sulfur 32.064 $(Ne) 3s^2 3p^4$	Cl Chlorine 35.453 $(Ne) 3s^2 3p^5$	Kr Krypton 83.80 $(Ar) 3d^{10} 4s^2 4p^6$
Ga Gallium 69.72 $(Ar) 3d^{10} 4s^2 4p^1$	Ge Germanium 72.59 $(Ar) 3d^{10} 4s^2 4p^2$	As Arsenic 74.922 $(Ar) 3d^{10} 4s^2 4p^3$	Se Selenium 78.96 $(Ar) 3d^{10} 4s^2 4p^4$	Br Bromine 79.904 $(Ar) 3d^{10} 4s^2 4p^5$	I Iodine 126.904 $(Kr) 4d^{10} 5s^2 5p^5$
In Indium 114.82 $10s^2 5p^1$	Sn Tin 118.69 $(Kr) 4d^{10} 5s^2 5p^2$	Sb Antimony 121.76 $(Kr) 4d^{10} 5s^2 5p^3$	Te Tellurium 127.60 $(Kr) 4d^{10} 5s^2 5p^4$	Po Polonium 209 $(Xe) 4f^{14} 5d^{10} 6s^2 6p^4$	At Astatine (210) $(Xe) 4f^{14} 5d^{10} 6s^2 6p^5$

- Although earlier precursors exist, its invention is generally credited to Russian chemist Dimitri Mendeleev in 1869.



- Mendeleev intended the table to illustrate recurring ("periodic") trends in the properties of the elements.

Dobereiner's triads
 Known to Mendeleev
 Unknown to Mendeleev

	H 1.01											
He 4.00	Li 6.94	Be 9.01	B 10.8	C 12.0	N 14.0	O 16.0	F 19.0					
Ne 20.2	Na 23.0	Mg 24.3	Al 27.0	Si 28.1	P 31.0	S 32.1	Cl 35.5					
Ar 40.0	K 39.1	Ca 40.1	Sc 45.0	Ti 47.9	V 50.9	Cr 52.0	Mn 54.9	Fe 55.9	Co 58.9	Ni 58.7		
	Cu 63.5	Zn 65.4	Ga 69.7	Ge 72.6	As 74.9	Se 79.0	Br 79.9					
Kr 83.8	Rb 85.5	Sr 87.6	Y 88.9	Zr 91.2	Nb 92.9	Mo 95.9	Tc (99)	Ru 101	Rh 103	Pd 106		
	Ag 108	Cd 112	In 115	Sn 119	Sb 122	Te 128	I 127					
Xe 131	Ce 133	Ba 137	La 139	Hf 179	Ta 181	W 184	Re 180	Os 194	Ir 192	Pt 195		
	Au 197	Hg 201	Tl 204	Pb 207	Bi 209	Po (210)	At (210)					
Rn (222)	Fr (223)	Ra (226)	Ac (227)	Th 232	Pa (231)	U 238						

■ The layout of the table has been refined and extended over time, as new elements have been discovered, and new theoretical models have been developed to explain chemical behavior.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18																														
1	1 H Hydrogen 1.00794	Atomic # Symbol Name Atomic Mass																	2 He Helium 4.002602																													
2	3 Li Lithium 6.941	4 Be Beryllium 9.012182	<table border="1"> <tr> <td>C Solid</td> <td colspan="2">Metals</td> <td colspan="3">Nonmetals</td> </tr> <tr> <td>Hg Liquid</td> <td>Alkali metals</td> <td>Alkaline earth metals</td> <td>Lanthanoids</td> <td>Transition metals</td> <td>Poor metals</td> <td>Other nonmetals</td> <td>Noble gases</td> </tr> <tr> <td>H Gas</td> <td></td> <td></td> <td>Actinoids</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Rf Unknown</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>										C Solid	Metals		Nonmetals			Hg Liquid	Alkali metals	Alkaline earth metals	Lanthanoids	Transition metals	Poor metals	Other nonmetals	Noble gases	H Gas			Actinoids					Rf Unknown								5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.0067	8 O Oxygen 15.9994	9 F Fluorine 18.9984032	10 Ne Neon 20.1797
C Solid	Metals		Nonmetals																																													
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3	11 Na Sodium 22.98976928	12 Mg Magnesium 24.3050	13 Al Aluminium 26.9815386	14 Si Silicon 28.0855	15 P Phosphorus 30.973762	16 S Sulfur 32.065	17 Cl Chlorine 35.453	18 Ar Argon 39.948																																								
4	19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.955912	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938045	26 Fe Iron 55.845	27 Co Cobalt 58.933195	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.04	33 As Arsenic 74.92160	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.798																														
5	37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90585	40 Zr Zirconium 91.224	41 Nb Niobium 92.90638	42 Mo Molybdenum 95.96	43 Tc Technetium (97.9072)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.90447	54 Xe Xenon 131.293																														

■ The current standard table contains 117 confirmed elements as of October 16, 2006

Group → ↓ Period	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra		104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Uut	114 Fl	115 Uup	116 Lv	117 Uus	118 Uuo
Lanthanides				57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
Actinides				89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr

While element 118 has been synthesized, element 117 has not.

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55 Cs Caesium 132.9054519	56 Ba Barium 137.327	57-71	72 Hf Hafnium 178.49	73 Ta Tantalum 180.94788	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.084	79 Au Gold 196.966569	80 Hg Mercury 200.59	81 Tl Thallium 204.3833	82 Pb Lead 207.2	83 Bi Bismuth 208.98040	84 Po Polonium (208.9824)	85 At Astatine (209.9871)	86 Rn Radon (222.0176)																																					
87 Fr Francium (223)	88 Ra Radium (226)	89-103	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (266)	107 Bh Bohrium (264)	108 Hs Hassium (277)	109 Mt Meitnerium (268)	110 Ds Darmstadtium (271)	111 Rg Roentgenium (272)	112 Uub Ununbium (285)	113 Uut Ununtrium (284)	114 Uuq Ununquadium (289)	115 Uup Ununpentium (288)	116 Uuh Ununhexium (292)	117 Uus Ununseptium	118 Uuo Ununoctium (294)																																					

For elements with no stable isotopes, the mass number of the isotope with the longest half-life is in parentheses.

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57 La Lanthanum 138.90547	58 Ce Cerium 140.116	59 Pr Praseodymium 140.90765	60 Nd Neodymium 144.242	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.92535	66 Dy Dysprosium 162.500	67 Ho Holmium 164.93032	68 Er Erbium 167.259	69 Tm Thulium 168.93421	70 Yb Ytterbium 173.054	71 Lu Lutetium 174.9668
89 Ac Actinium (227)	90 Th Thorium 232.03806	91 Pa Protactinium 231.03688	92 U Uranium 238.02891	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)

Periodic Table of the Elements

www.nrc-cnrc.gc.ca/student-science-tech

Group

Key

- Alkali metals
- Alkaline earth metals
- Transition metals
- Other metals
- Other non-metals
- Halogens
- Noble gases
- Lanthanides
- Actinides

Atomic Number → 4 **Be** ← Symbol
Name → Beryllium ← Relative Atomic Mass

Symbol in white: element has no stable nuclides

1A 1	2A 2	3A 13 4A 14 5A 15 6A 16 7A 17										8A 18																																			
1 1.00794 Hydrogen	4 9.01218 Beryllium	5 10.811 Boron	6 12.0107 Carbon	7 14.0067 Nitrogen	8 15.9994 Oxygen	9 18.9984 Fluorine	10 20.1797 Neon																																								
2 3 6.941 Lithium	12 24.305 Magnesium	13 26.9815 Aluminum	14 28.0855 Silicon	15 30.9738 Phosphorus	16 32.065 Sulfur	17 35.453 Chlorine	18 39.948 Argon																																								
3 11 22.9898 Sodium	20 40.078 Calcium	21 44.9559 Scandium	22 47.867 Titanium	23 50.9415 Vanadium	24 51.9961 Chromium	25 54.938 Manganese	26 55.845 Iron	27 58.9332 Cobalt	28 58.6934 Nickel	29 63.546 Copper	30 65.409 Zinc	31 69.723 Gallium	32 72.64 Germanium	33 74.9216 Arsenic	34 78.96 Selenium	35 79.904 Bromine	36 83.798 Krypton																														
4 19 39.0983 Potassium	38 87.62 Strontium	39 88.9059 Yttrium	40 91.224 Zirconium	41 92.9064 Niobium	42 95.94 Molybdenum	43 [98] Technetium	44 101.07 Ruthenium	45 102.9055 Rhodium	46 106.42 Palladium	47 107.8682 Silver	48 112.411 Cadmium	49 114.818 Indium	50 118.710 Tin	51 121.760 Antimony	52 127.60 Tellurium	53 126.9045 Iodine	54 131.293 Xenon																														
5 37 85.4678 Rubidium	56 137.327 Barium	57-71 La-Lu	72 178.49 Hafnium	73 180.9479 Tantalum	74 183.84 Tungsten	75 186.207 Rhenium	76 190.23 Osmium	77 192.217 Iridium	78 195.084 Platinum	79 196.9666 Gold	80 200.59 Mercury	81 204.383 Thallium	82 207.2 Lead	83 208.9804 Bismuth	84 (209) Polonium	85 (210) Astatine	86 (222) Radon																														
6 55 132.90545 Cesium	88 [226] Radium	89-103 Ac-Lr	104 [261] Rutherfordium	105 [262] Dubnium	106 [266] Seaborgium	107 [264] Bohrium	108 [277] Hassium	109 [268] Meitnerium	110 [281] Darmstadtium	111 [272] Roentgenium	112 [285] Ununbium	113 [284] Ununtrium	114 [289] Ununquadium	115 [288] Ununpentium																																	
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■ In the periodic table, the elements are laid out in *rows* and *columns*.

Hydrogen (H) does not belong to any chemical group.

Like all alkali metals, lithium (Li) has just one valence electron.

Like all alkaline earth metals, magnesium (Mg) has two valence electrons.

Like all halogens, iron (Fe) has seven valence electrons.

Like all inert gases, neon (Ne) has eight valence electrons.

The periodic table is shown with elements arranged in rows and columns. Callouts highlight the valence electron configuration for several elements: Hydrogen (H), Lithium (Li), Magnesium (Mg), Iron (Fe), and Neon (Ne). The callout for Iron (Fe) is incorrect in the original image.

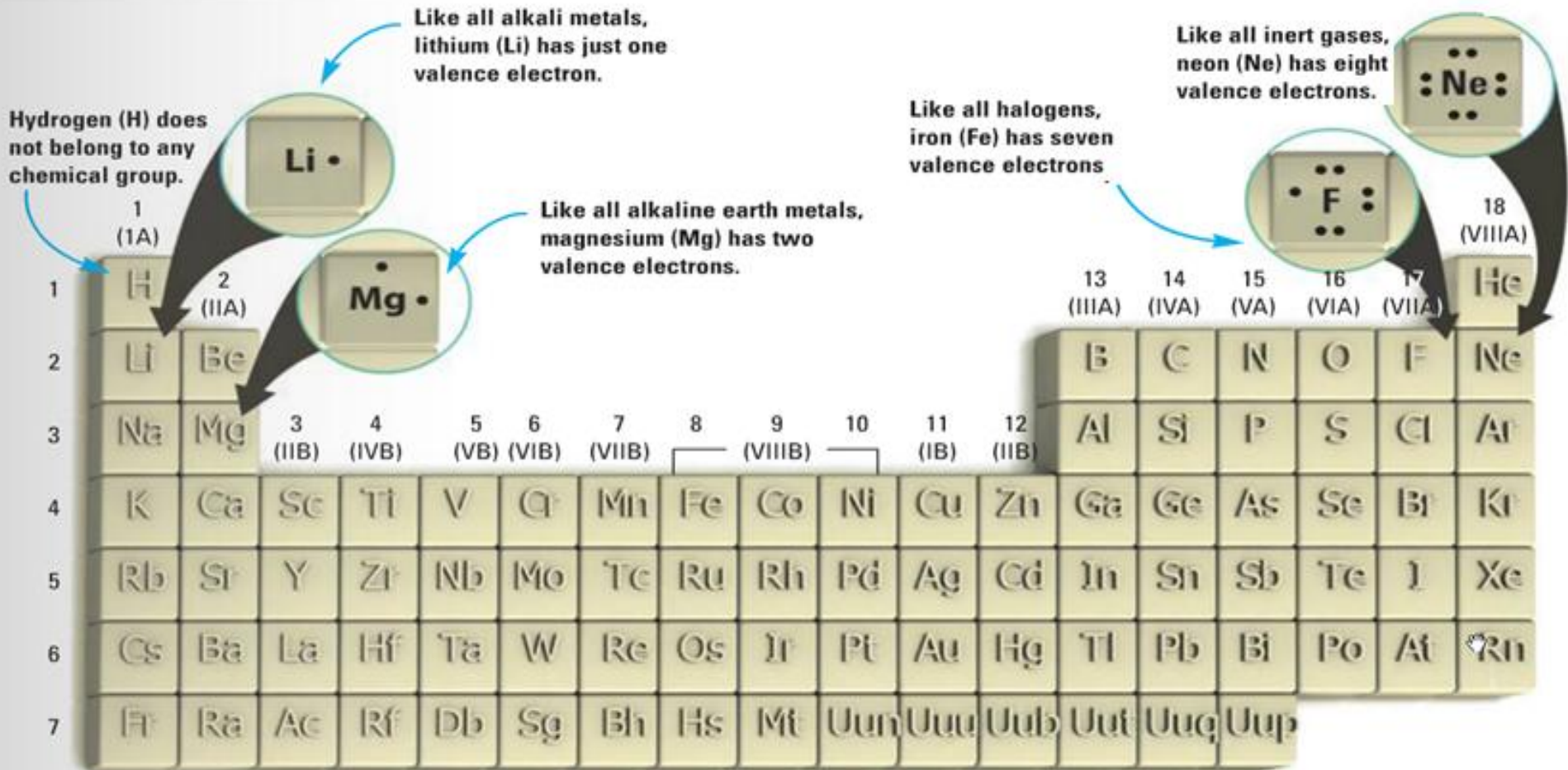
1	1 (IA)	2 (IIA)											13 (IIIA)	14 (IVA)	15 (VA)	16 (VIA)	17 (VIIA)	18 (VIIIA)	
1	H																		
2	Li	Be																	
3	Na	Mg	3 (IIB)	4 (IVB)	5 (VB)	6 (VIB)	7 (VIIB)	8 (VIIIB)	9 (VIIIB)	10 (VIIIB)	11 (IB)	12 (IIB)	Al	Si	P	S	Cl	Ar	
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
6	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
7	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Uun	Uuu	Uub	Uut	Uuq	Uup				

- Each row of the table is called *a period*.
- Periods are marked with numbers from *1 to 7*, on the *left* side of the periodic table.

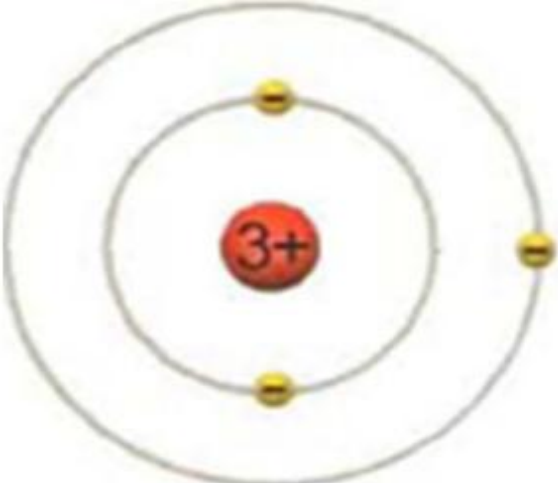
1							
2							
3							
4							
5							
6							
7							

CHARACTERISTICS OF PERIODS

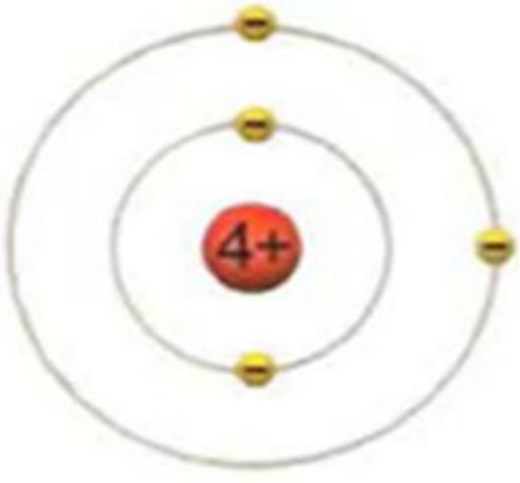
□ Let us consider some elements found on the same period: Lithium, Beryllium and Boron.



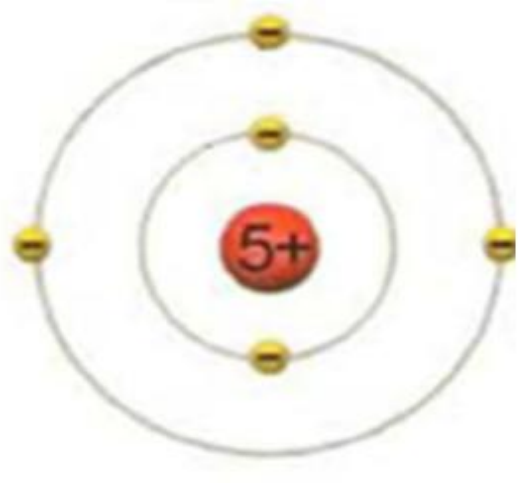
■ According to the Rutherford-Bohr atomic model, the three elements are represented like this:



Lithium



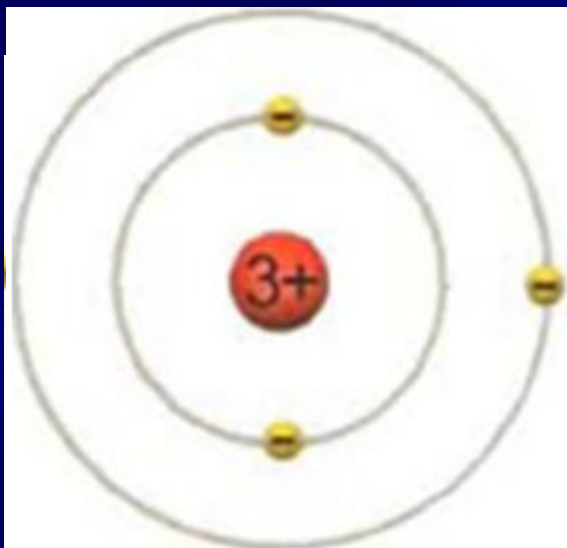
Beryllium



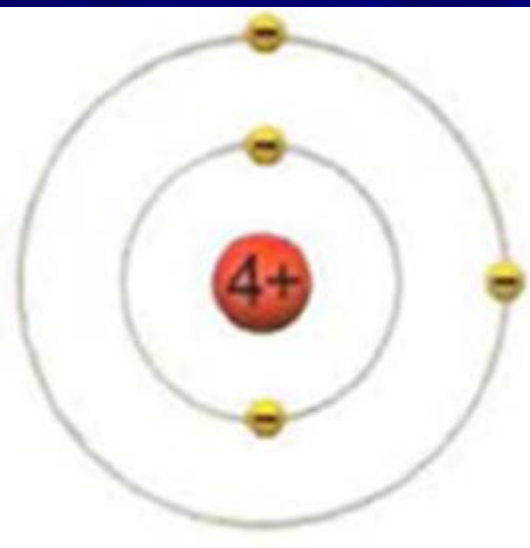
Boron

1 H 1.01								2 He 4.00
3 Li 6.94	4 Be 9.01	5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18	

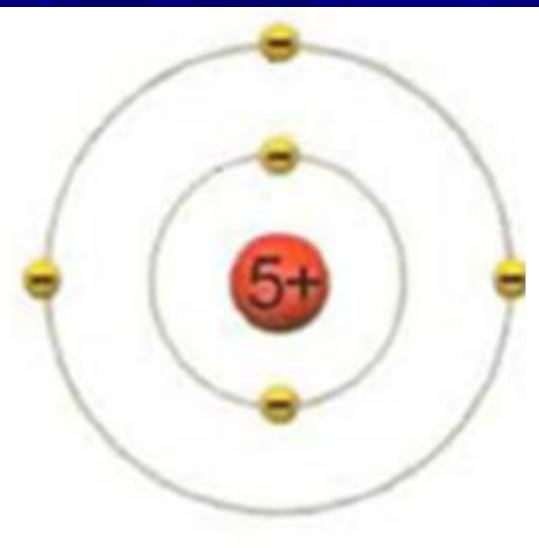
■ Elements situated on the same period *have the same number of electron shells.*



Lithium



Beryllium

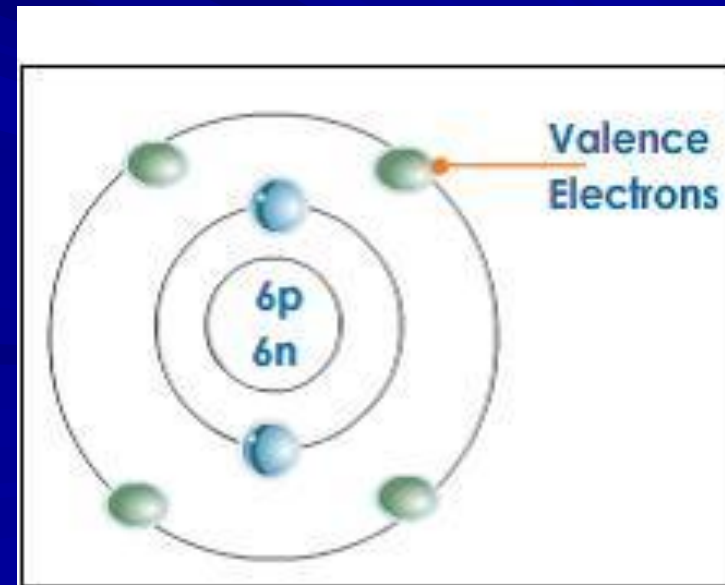


Boron

1 H 1.01									2 He 4.00
3 Li 6.94	4 Be 9.01		5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18	

VALENCE ELECTRONS

- ❑ The electrons that are farthest from the nucleus are important because they are more frequently involved in the atom's chemical reactions.
- ❑ These electrons of the outermost shell are called *valence electrons*.



CHARACTERISTICS OF GROUPS

- Elements located in the same group display similar *chemical properties*.
- To understand this similarity more clearly, consider 3 elements from the first column.

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Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	H 1.00794 Hydrogen																	He 4.002602 Helium
2	Li 6.941 Lithium	Be 9.012182 Beryllium											B 10.811 Boron	C 12.011 Carbon	N 14.0064 Nitrogen	O 15.9994 Oxygen	F 18.9984032 Fluorine	Ne 20.1797 Neon
3	Na 22.98976928 Sodium	Mg 24.304 Magnesium											Al 26.9815385 Aluminum	Si 28.0855 Silicon	P 30.973761998 Phosphorus	S 32.06 Sulfur	Cl 35.453 Chlorine	Ar 39.948 Argon
4	K 39.0983 Potassium	Ca 40.078 Calcium	Sc 44.955912 Scandium	Ti 47.88 Titanium	V 50.9415 Vanadium	Cr 51.9961 Chromium	Mn 54.938045 Manganese	Fe 55.845 Iron	Co 58.933195 Cobalt	Ni 58.6934 Nickel	Cu 63.546 Copper	Zn 65.38 Zinc	Ga 69.723 Gallium	Ge 72.64 Germanium	As 74.921595 Arsenic	Se 78.96 Selenium	Br 79.904 Bromine	Kr 83.796 Krypton
5	Rb 85.4678 Rubidium	Sr 87.62 Strontium	Y 88.905848 Yttrium	Zr 91.224 Zirconium	Nb 92.90638 Niobium	Mo 95.94 Molybdenum	Tc [98] Technetium	Ru 101.07 Ruthenium	Rh 102.90550 Rhodium	Pd 106.42 Palladium	Ag 107.8682 Silver	Cd 112.411 Cadmium	In 114.818 Indium	Sn 118.710 Tin	Sb 121.757 Antimony	Te 127.60 Tellurium	I 126.90447 Iodine	Xe 131.29 Xenon
6	Cs 132.90545196 Cesium	Ba 137.327 Barium	La-Lu [138.905]	Hf 178.49 Hafnium	Ta 180.94788 Tantalum	W 183.84 Tungsten	Re 186.207 Rhenium	Os 190.23 Osmium	Ir 192.222 Iridium	Pt 195.084 Platinum	Au 196.966569 Gold	Hg 200.59 Mercury	Tl 204.3871 Thallium	Pb 207.2 Lead	Bi 208.9804 Bismuth	Po [209] Polonium	At [210] Astatine	Rn [222] Radon
7	Fr [223] Francium	Ra [226] Radium	Ac-Lr [227]	Rf [261] Rutherfordium	Db [262] Dubnium	Sg [263] Seaborgium	Bh [264] Bohrium	Hs [277] Hassium	Mt [268] Meitnerium	Ds [285] Darmstadtium	Rg [286] Roentgenium	Uub [287] Ununbium	Uut [288] Ununtrium	Uuq [289] Ununquadium	Uup [290] Ununpentium	Uuh [291] Ununhexium	Uuo [292] Ununoctium	

□ Let us consider Lithium, Sodium and Potassium.

Hydrogen (H) does not belong to any chemical group.

Like all alkali metals, lithium (Li) has just one valence electron.

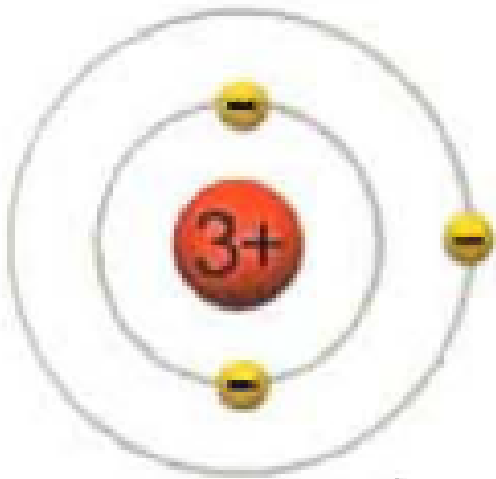
Like all alkaline earth metals, magnesium (Mg) has two valence electrons.

Like all halogens, iron (Fe) has seven valence electrons.

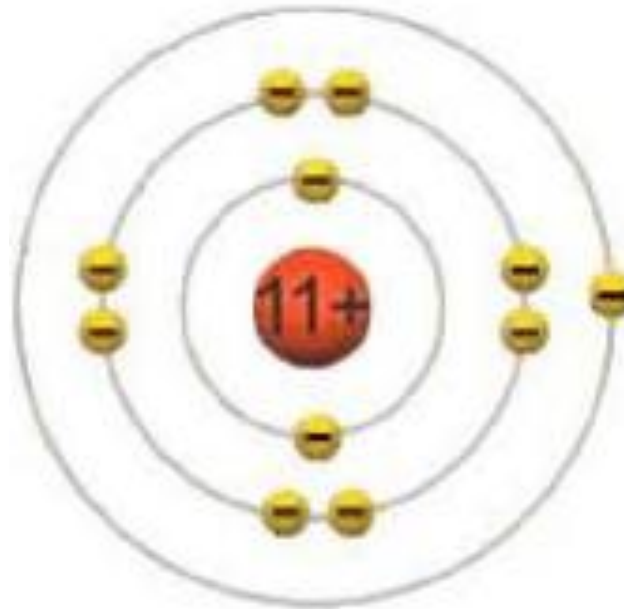
Like all inert gases, neon (Ne) has eight valence electrons.

1	1 (IA)	H	2 (IIA)	Li	Be											13 (IIIA)	14 (IVA)	15 (VA)	16 (VIA)	17 (VIIA)	18 (VIIIA)	He
2		Li		Be													B	C	N	O	F	Ne
3		Na		Mg	3 (IIB)	4 (IVB)	5 (VB)	6 (VIB)	7 (VIIB)	8 (VIIIB)	9 (VIIIB)	10 (VIIIB)	11 (IB)	12 (IIB)	Al	Si	P	S	Cl	Ar		
4		K		Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr		
5		Rb		Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
6		Cs		Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn		
7		Fr		Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Uun	Uuu	Uub	Uut	Uuq	Uup					

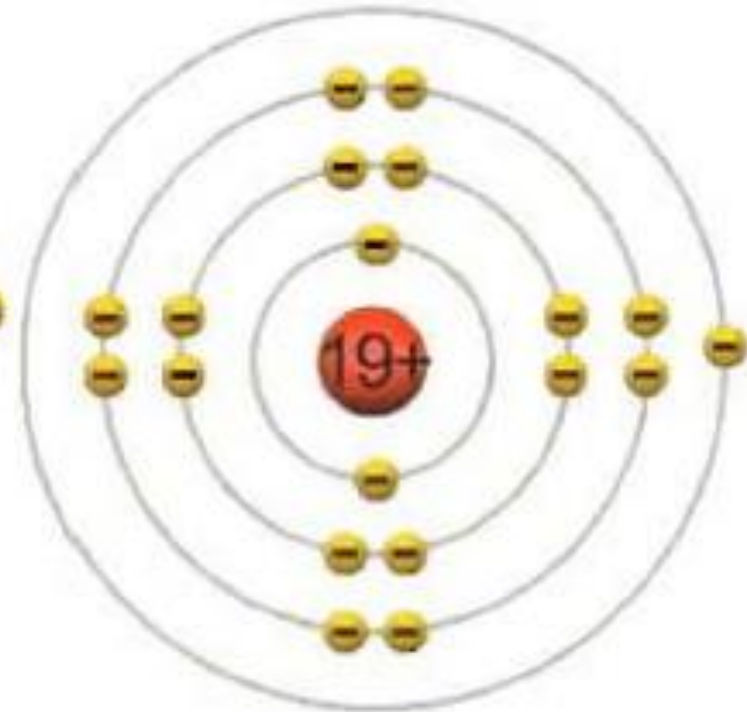
□ According to the Rutherford-Bohr model of the atom, the three elements could be represented like this:



Lithium

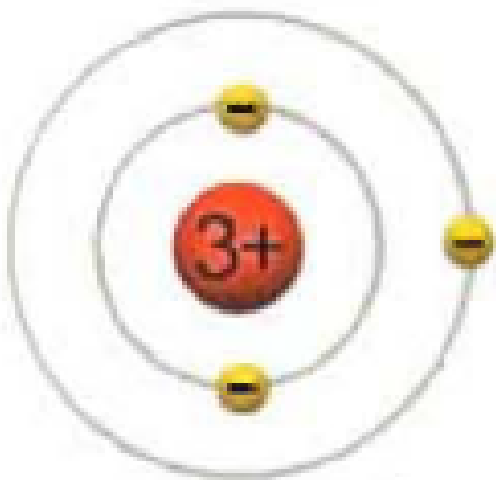


Sodium

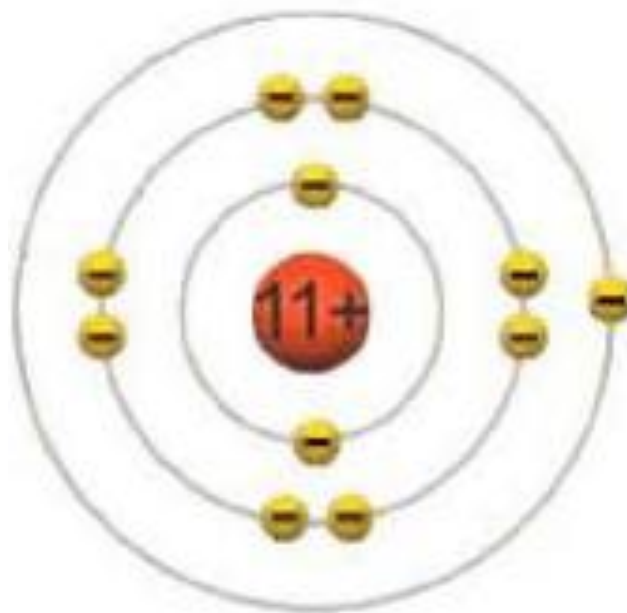


Potassium

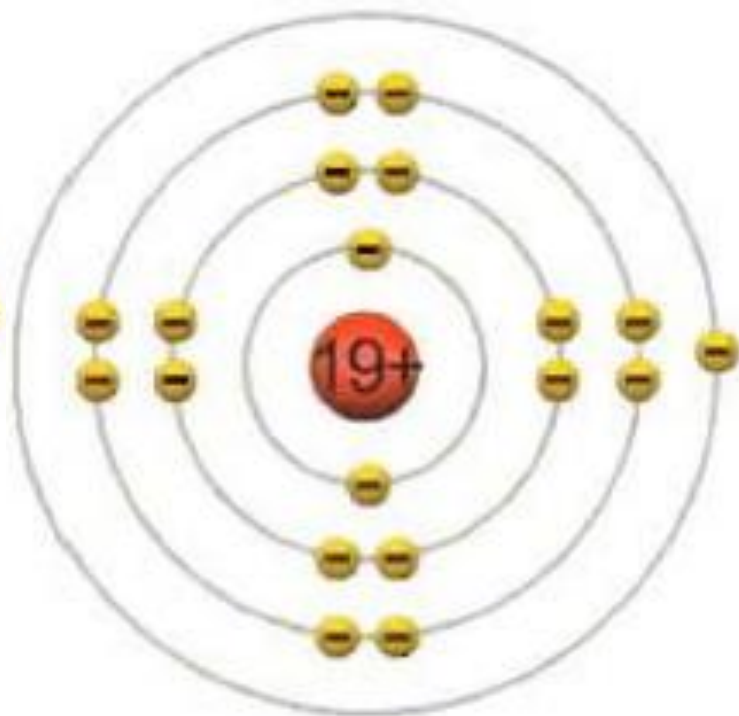
□ As we can see, each of these elements has the same number of valence electrons.



Lithium

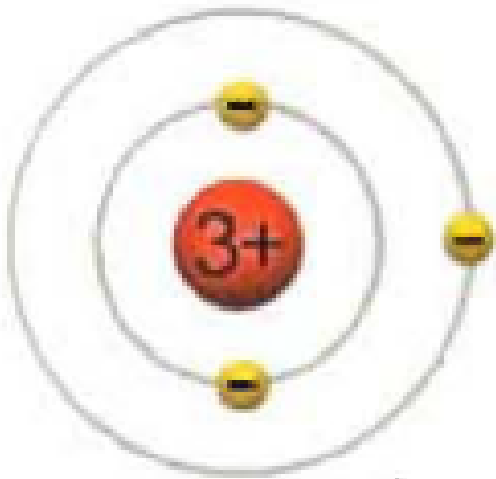


Sodium

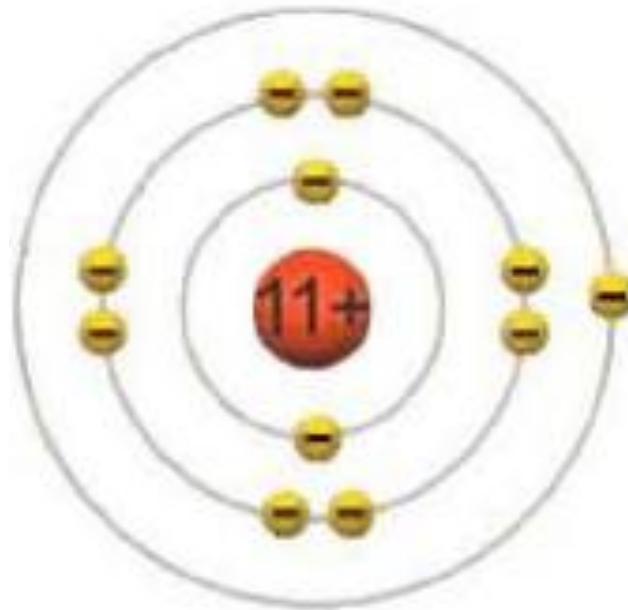


Potassium

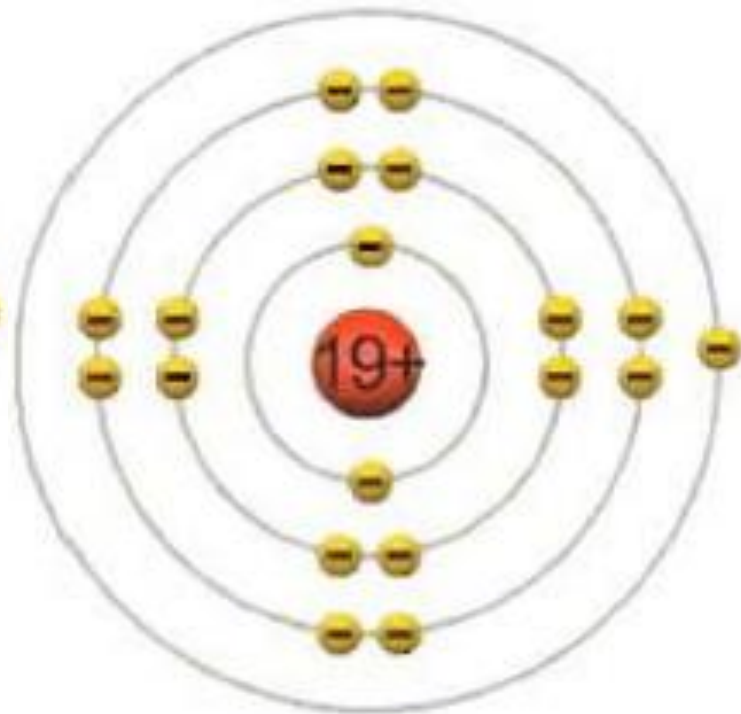
Elements situated in the same group *have the same number of valence electrons.*



Lithium



Sodium



Potassium

Important to remember:

- ❑ The number of the *group* corresponds to the number of *valence electrons* that an atom has.

- ❑ The number of the *period* corresponds to the number of *electron shells* that an atom has.