Writing Electron Configurations: Notation

F $1s^2 2s^2 2p^5$ $[He]2s^2 2p^5$

S $1s^2 2s^2 2p^6 3s^2 3p^4$ $[Ne]3s^2 3p^4$

C $1s^2 2s^2 2p^2$ $[He]2s^2 2p^2$

Ca $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$ $[Ar]4s^2$

Se $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4$ $[Ar]4s^2 3d^{10} 4p^4$

Core (inner-shell) electrons
The electrons in the same configuration as the noble gas that precedes the element
Exception: lower-level orbitals d/f

in Se: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10}$

Valence (outer-shell) electrons
The electrons in the outermost shell, all that are not considered core electrons
Largest coefficient in electron configuration

in Se: $4s^2 4p^4$

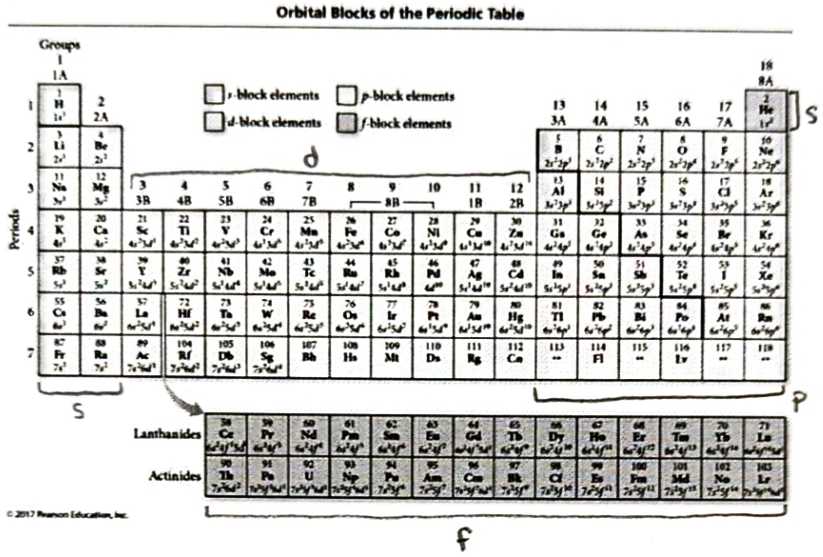
F^- $[He]2s^2 2p^6 = [Ne]$

Ca^{2+} $[Ar]$

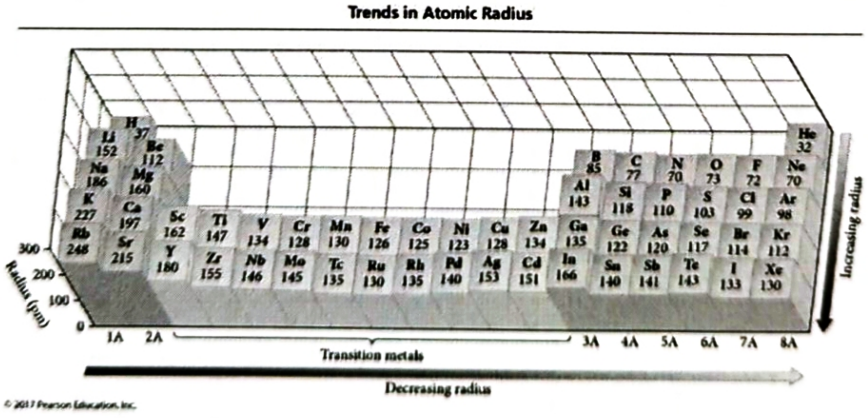
1A 1												3A 13	4A 14	5A 15	6A 16	7A 17	8A 18
1 H 1.01	2A 2							8B									2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3	3B 3	4B 4	5B 5	6B 6	7B 7	8	9	10	1B 11	2B 12	13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.1	17 Cl 35.4	18 Ar 39.9
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 50.9	24 Cr 52.0	25 Mn 54.9	26 Fe 55.8	27 Co 58.9	28 Ni 58.7	29 Cu 63.5	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 79.9	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	43 Tc (98)	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 178	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra 226	89 Ac 227	104 Rf (261)	105 Ha (262)	106 Unh (263)	107 Uns (262)	108 Uno (265)	109 Une (266)									

Lanthanides	58 Ce 140	59 Pr 141	60 Nd 144	61 Pm (145)	62 Sm 150	63 Eu 152	64 Gd 157	65 Tb 159	66 Dy 162	67 Ho 165	68 Er 167	69 Tm 169	70 Yb 173	71 Lu 175
Actinides	90 Th 232	91 Pa 231	92 U 238	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (260)

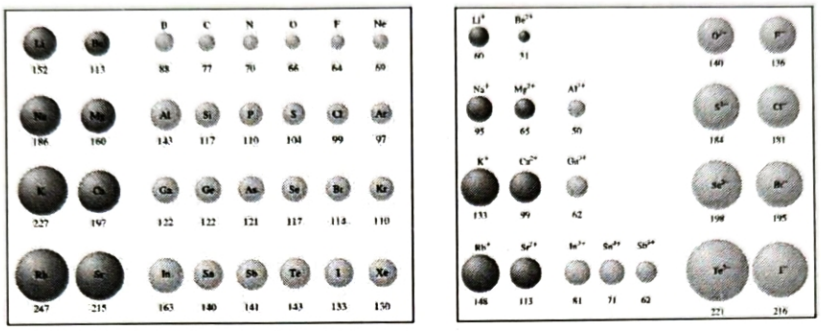
Figure 9.7



Trend in Atomic Radii



Trend in Ionic Radii



Cations - smaller than corresponding neutral atom

Anions - larger than corresponding neutral atom