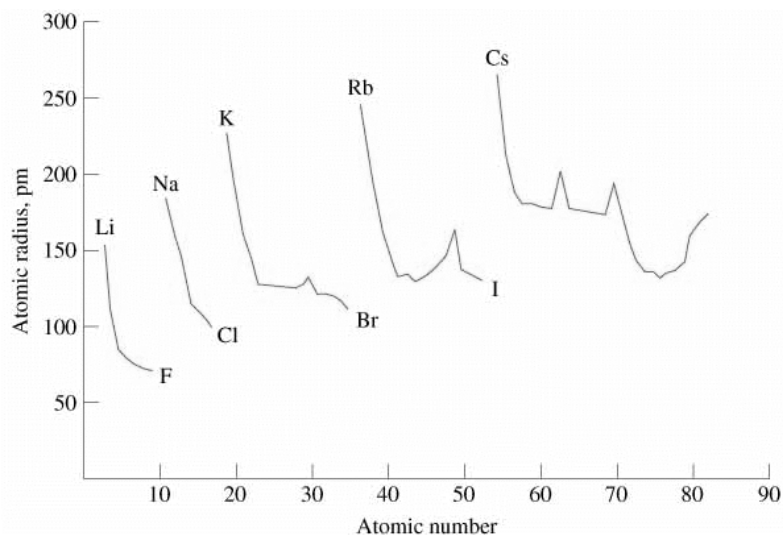


Chapter 6: Periodicity

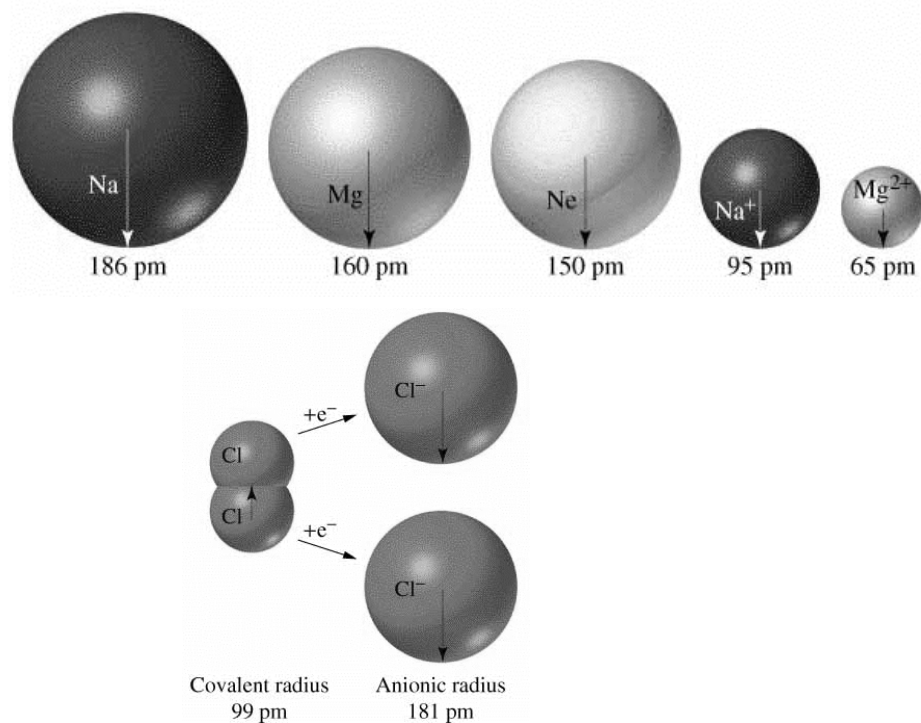
When arranged in increasing atomic number, some physical and chemical properties follow a period behavior (repeat).

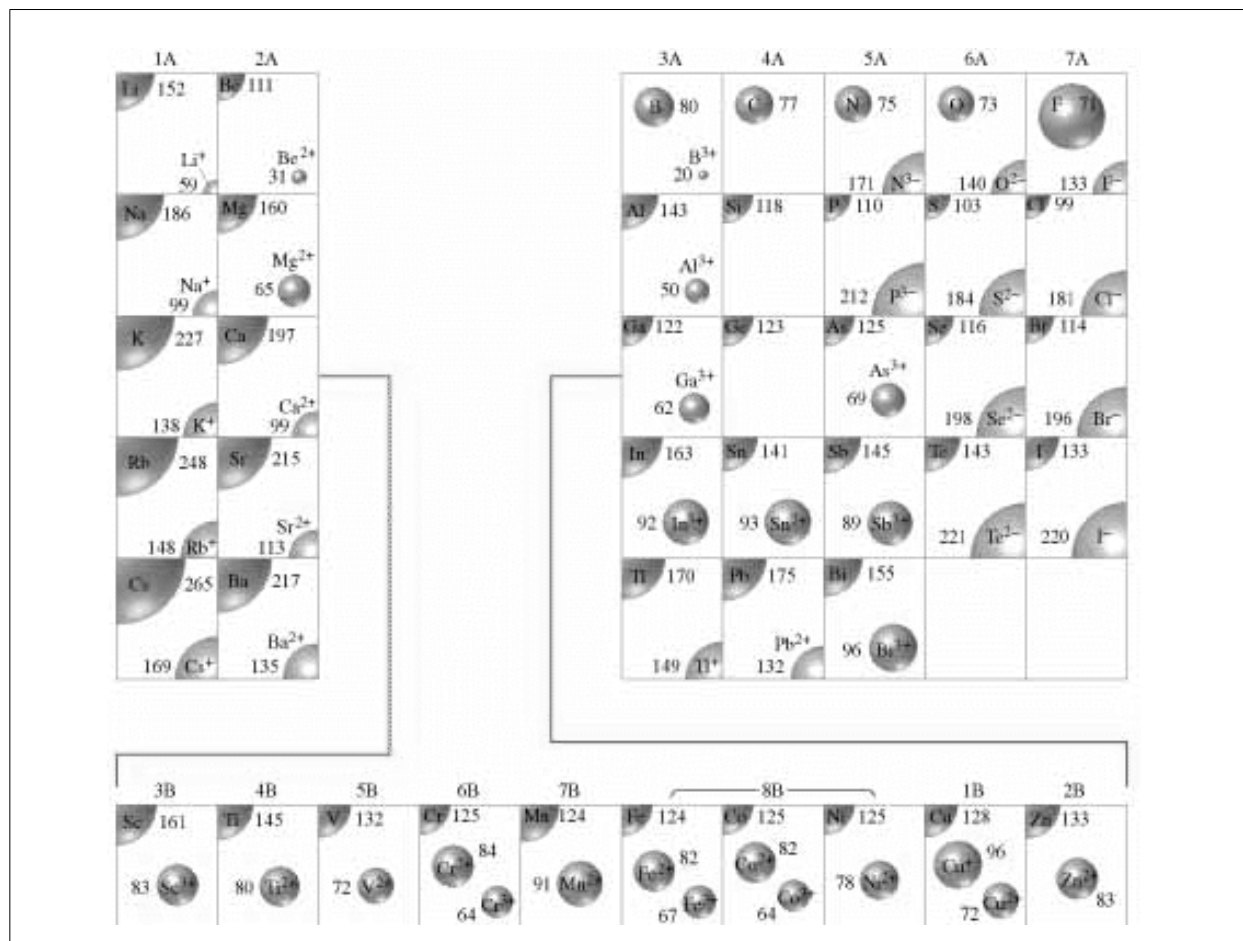
e.g., atomic radii, ionic radii, ionization energy, e^- affinity

Atomic Radii



Ionic Radii

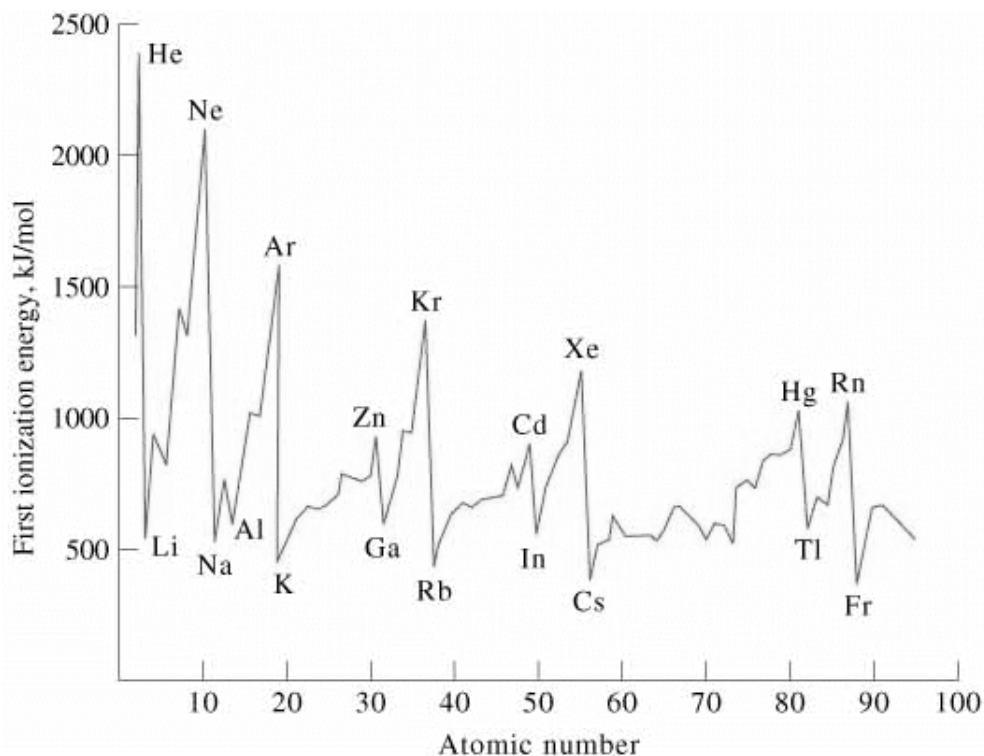




Ionization energy
Ionization energy increases with decreasing atomic or ionic radii.

TABLE 8.4 Some Selected Ionization Energies, kJ/mol

	1A	2A	3A	4A	5A	6A	7A	8A
	Li	Be	B	C	N	O	F	Ne
I_1	520	900	801	1086	1402	1314	1681	2081
I_2	7298	1757						
	Na	Mg						
I_1	496	738						
I_2	4562	1451						
	K	Ca						
I_1	419	590						
I_2	3051	1145						
	Rb	Sr						
I_1	403	550						
I_2	2633	1064						
	Cs	Ba						
I_1	376	503						
I_2	2230	965						

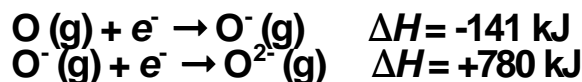


Electron Affinity

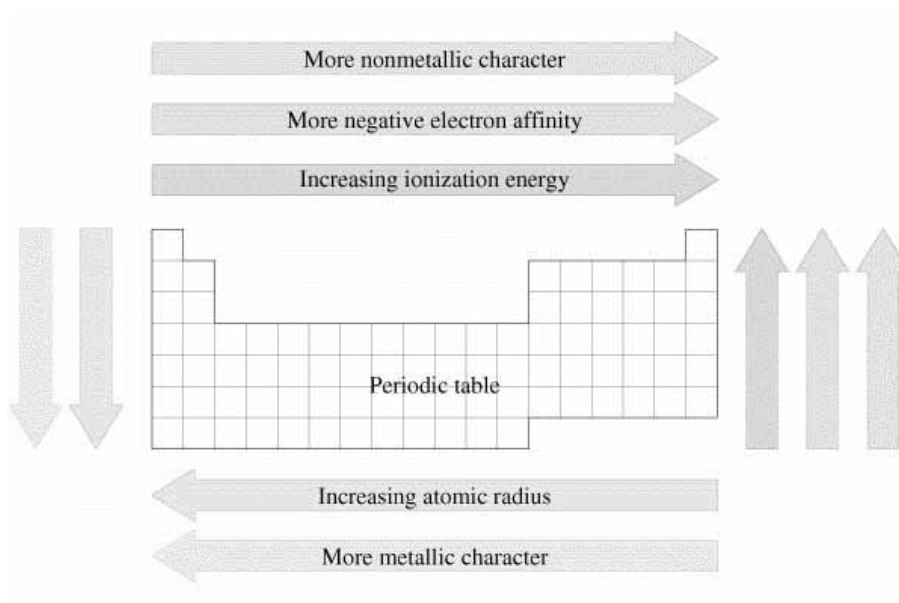
Energy change when an element or ion in the gas state accepts an electron.

Follows similar trend as ionization energies.

1A	2A	3A	4A	5A	6A	7A	8A
Li	Be	B	C	N	O	F	Ne
-60	≤0	-27	-154	-7	-141	-328	<0
Na	Mg	Al	Si	P	S	Cl	Ar
-53	≤0	-44	-134	-72	-200	-349	<0
K	Ca	Ga	Ge	As	Se	Br	Kr
-48	-2.4	-29	-118	-77	-195	-325	<0
Rb	Sr	In	Sn	Sb	Te	I	Xe
-47	-4.7	-29	-121	-101	-190	-295	<0



☉ Predict what the second electron affinity (kJ/mol) would be for sulfur: -200 +450 +800 +1200



Read Sections 6.7 (pg. 221) to 6.8 (pg. 238)