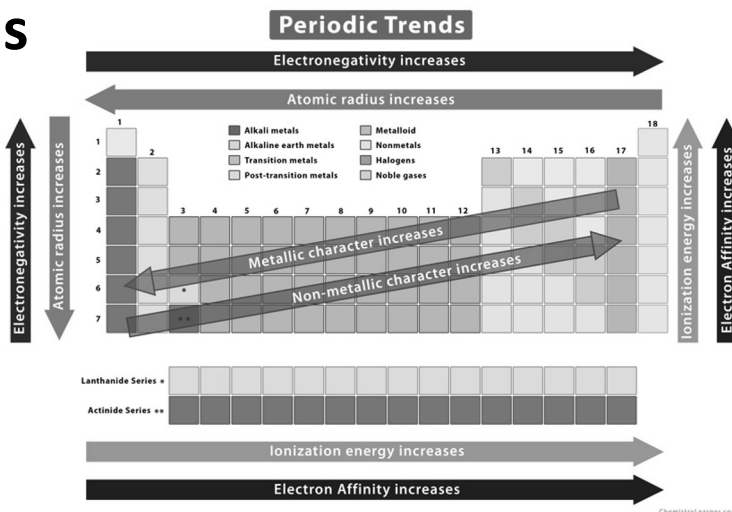


Periodic Trends

A periodic trend is a relationship between atoms on main properties of atoms

Properties of atoms inc.

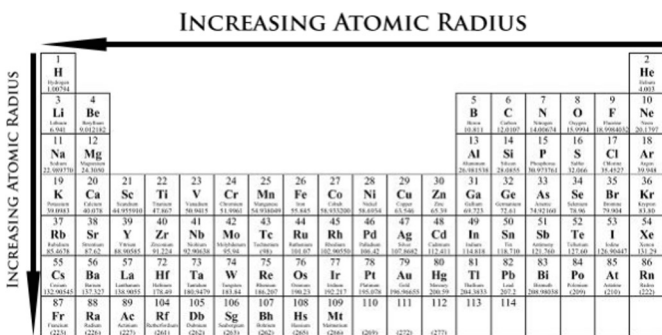
- Atomic Size
- Ion Size
- Ionization Energy
- Metallic Character
- Electron Affinity
- Electronegativity



9

Atomic Size

Atomic Size Trends



The periodic trend for atomic size is much more important than the group trend

Atomic Size

Group Trend (*left to right*)
Decreases Across Table

More protons with the same EL pull e^- more

Period Trend (*up and down*)
Increases dramatically down the groups on the table

More EL as more total e^- total in atom increases size

10

Ion Size

Cation (+) and Anion (-) Trends

Group 1A		Group 2A		Group 3A		Group 6A		Group 7A	
Li ⁺	Li	Be ²⁺	Be	B ³⁺	B	O	O ²⁻	F	F ⁻
0.68	1.34	0.31	0.90	0.23	0.82	0.73	1.40	0.71	1.33
Na ⁺	Na	Mg ²⁺	Mg	Al ³⁺	Al	S	S ²⁻	Cl	Cl ⁻
0.97	1.54	0.66	1.30	0.51	1.18	1.02	1.84	0.99	1.81
K ⁺	K	Ca ²⁺	Ca	Ga ³⁺	Ga	Se	Se ²⁻	Br	Br ⁻
1.33	1.96	0.99	1.74	0.62	1.26	1.16	1.98	1.14	1.96
Rb ⁺	Rb	Sr ²⁺	Sr	In ³⁺	In	Te	Te ²⁻	I	I ⁻
1.47	2.11	1.13	1.92	0.81	1.44	1.35	2.21	1.33	2.20

Ion Size Trend

Cations (+ ion)

Cations smaller than neutral

Losing outer level of atom makes ion smaller

Anion (- ion)

Anions larger than neutral

Adding more e⁻ makes val. e⁻ spread apart making ion bigger overall