

CONCEPT: MAIN GROUP ELEMENTS: PERIODIC TRENDS

- As we move to the **top right corner** of the Periodic Table, similar periodic trends can be grouped together.

□ **Periodic Trends Type A:** The periodic trends starting with **L, I** or **E** all ____.

- They include **L**attice Energy, **I**onization Energy, **E**lectron Affinity, and **E**lectronegativity.

MEMORY TOOL When you **LIE** you make stuff ____.

□ **Periodic Trends Type B:** Metallic Character and Atomic Radius both ____.

	1A (1)	2A (2)		3A (13)	4A (14)	5A (15)	6A (16)	7A (17)	8A (18)
1	H Hydrogen								He Helium
2	Li Lithium	Be Beryllium		B Boron	C Carbon	N Nitrogen	O Oxygen	F Fluorine	Ne Neon
3	Na Sodium	Mg Magnesium		Al Aluminum	Si Silicon	P Phosphorus	S Sulfur	Cl Chlorine	Ar Argon
4	K Potassium	Ca Calcium	Transition Metals	Ga Gallium	Ge Germanium	As Arsenic	Se Selenium	Br Bromine	Kr Krypton
5	Rb Rubidium	Sr Strontium		In Indium	Sn Tin	Sb Antimony	Te Tellurium	I Iodine	Xe Xenon
6	Cs Cesium	Ba Barium		Tl Thallium	Pb Lead	Bi Bismuth	Po Polonium	At Astatine	Rn Radon
7	Fr Francium	Ra Radium		Nh Nihonium	Fl Flerovium	Mc Moscovium	Lv Livermorium	Ts Tennessine	Og Oganesson

Periodic Trend (Type A) ____

Periodic Trend (Type B) ____

□ **Note:** see (1) Ionization Energy & (2) Electron Affinity for more info on periodic trends.

EXAMPLE: Group 3A elements tend to have ____ atomic radii and ____ ionization energies than Group 1A elements.

a) higher, lower

b) lower, higher

c) lower, lower

d) higher, higher

PRACTICE: Rank the following elements in order of increasing lattice energy: S, In, K, Ba and Cl

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PRACTICE: Which of the following elements will have the lowest electron affinity?

- a) Cl b) K c) P d) Be e) O

PRACTICE: For Group 5A elements, the ionization energy decreases going down a group because:

- a) Their atomic masses increases.
- b) The highest number of their valence orbital shell increases.
- c) Their metallic character decreases.
- d) Their electron affinity increases.
- e) The number of neutrons in their nuclei decreases.