

The diagram illustrates the periodic trends of several properties across the periodic table. The trends are summarized in the following table:

Property	Trend Direction
Atomic Radius	Decreases (indicated by a red arrow pointing right)
Ionization Energy (E)	Increases (indicated by a black arrow pointing right)
Electronegativity	Increases (indicated by a green arrow pointing right)
Electron Affinity	Increases (indicated by a red arrow pointing right)

A separate diagram shows the relative sizes of cations, neutral atoms, and anions. The sizes are indicated by arrows pointing to the respective boxes, showing that cations are smaller than neutral atoms, and anions are larger than neutral atoms.

* sep. cations (+) w/ anions (-)

- Radii increases *down* b/c more energy levels being added
- Radii decreases *across* b/c more protons being added but e-s are added to the SAME

- Affected by attraction

- Farther away e^- is from nucleus, the easier it is to remove
 - Decreases down b/c e^- are farther away; increases across b/c more attraction pulling e^- towards interior

- pulling e- towards interior
- 2nd ionization energy always greater b/c harder to remove the 2nd e- when there is more attraction & less repulsion
- Low ionization energy = easier to form cations & conduct electricity

- Increases across b/c elements closer to having an orbital filled wants orbital filled for stability
- Decreases down b/c as valence e-s are farther away, nucleus feels less attracted to e-s

Electron Affinity = energy released when e^- is added to neutral atom to become a $(-)$ ion

- Note: adding e^- to already filled valence shell is unfavorable