

Name: _____

Date: _____

Periodic Trends Worksheet



Use the periodic table and your knowledge of periodic trends to answer the following questions.

- Which particle has the larger radius in each atom/ion pair?
a) **Na**, Na⁺ b) S, **S²⁻** c) **I**, I⁻ d) **Al**, Al³⁺
- What is the periodic trend for first ionization energy?
It increases going from left to right due to increased nuclear charge, and decreases going down a group due to increased distance from the nucleus and increased shielding
- What is the periodic trend for electronegativity? **Increases going left to right, decreases going down**
- Which atom in each pair has the larger atomic radius?
a) Li or **K** b) **Ca** or Ni c) **Ga** or B d) O or **C** f) Be or **Ba** g) **Si** or S h) Fe or **Au**
- Which element in each pair has a larger ionization energy?
a) Na or **O** b) **Be** or Ba c) **Ar** or F d) **Cu** or Ra e) I or **Ne**
f) K or **V** g) **Ca** or Fr h) W or **Se**
- Arrange the following groups of elements in order of increasing ionization energy
a) Be, Mg, Sr b) Bi, Cs, Ba c) Na, Al, S
high, middle, low high, low, middle low, middle, high
- What is the periodic trend for atomic size from top to bottom in a group? from left to right in a period? **Top to bottom increases due to adding energy levels Left to right: decreases**
- Why do atoms get smaller as you move left to right in a period? **due to increased nuclear charge and no added shielding**
- Explain the relationship between the relative size of an ion to its neutral atom and the charge on the ions **Positive ions are smaller than the neutral atom it comes from, negative ions are larger than the neutral atom it comes from**
- What is ionization energy? What is first ionization energy? **The amount of energy needed to remove an electron from an atom. First ionization energy is the energy required to remove a single valence electron from an atom.**
- Which element in each pair has a higher electronegativity value?
a) Cl, **F** b) C, **N** c) **Mg**, Ne d) **As**, Ca