

Even More Periodic Table Trends

Name: _____ KEY

- 1.) Circle the element with the largest atomic radius and put a square around the element with the smallest atomic radius: Cu K Ni Br

a.) Explain why you made these choices:

Answer - All of the elements are in the same period. The trend in atomic radius as you go across a period is **DECREASING**. Therefore, the element on the far left (K) is the largest, and the element on the far right (Br) is the smallest.

- 2.) Circle the element with the highest ionization energy and put a square around the element with the lowest ionization energy: Cu K Ni Br

a.) Explain why you made these choices:

Answer - All of the elements are in the same period. The trend in ionization energy as you go across a period is **INCREASING**. Therefore, the element on the far left (K) has the lowest ionization energy, and the element on the far right (Br) has the highest ionization energy.

- 3.) Circle the element with the highest electronegativity and put a square around the element with the lowest electronegativity: Cu K Ni Br

a.) Explain why you made these choices:

Answer - All of the elements are in the same period. The trend in electronegativity as you go across a period is **INCREASING**. Therefore, the element on the far left (K) has the lowest electronegativity, and the element on the far right (Br) has the highest electronegativity.

- 4.) For each of the following groups: Circle the element with the largest atomic radius and put a square around the element with the smallest atomic radius:

a.) O C Be Ne

b.) Na Rb Fr H

c.) Pb C Sn Si

d.) Au W S Fr Ne Zn

- 6.) For each of the following groups: Circle the element with the highest ionization energy and put a square around the element with the lowest ionization energy:

a.) O C Be Ne

b.) Na Rb Fr H

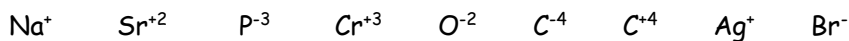
c.) Pb C Sn Si

d.) Au W S Fr Ne Zn

7.) For each of the following groups: Circle the element with the highest electronegativity and put a square around the element with the lowest electronegativity:

- a.) O C Be Ne
b.) Na Rb Fr H
c.) Pb C Sn Si
d.) Au W S Fr Ne Zn

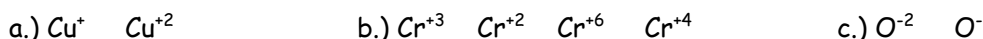
8.) Circle the ions that will have a radius larger than the radius of their neutral parent atom and put a square around the ions that will have a radius smaller than the radius of their neutral parent atom:



a.) Explain why you made these choices:

Answer - Cations (+ charge) are smaller than their parent atom because they have LOST electrons. Anions (- charge) are larger than their parent atom because they have GAINED electrons.

9.) For each of the following groups, circle the ion with the largest ionic radius:



10.) Rank the following elements in order of increasing atomic radius: Carbon, Aluminium, Oxygen, Potassium

Answer - Oxygen < Carbon < Aluminium < Potassium

11.) Rank the following elements in order of increasing electronegativity: Sulphur, Oxygen, Fluorine, Aluminium

Answer - Aluminium < Sulphur < Oxygen < Fluorine

12.) Rank the following elements in order of decreasing ionization energy: Lithium, Calcium, Barium, Nitrogen

Answer - Nitrogen, Lithium, Calcium, Barium

13.) What is the difference between ionization energy and electronegativity?

Answer - Ionization energy is the energy required to remove an electron. Electronegativity is the ability of an atom to gain an electron.