

Draw the trend for ATOMIC RADIUS



1. Rank each of the following in order of INCREASING atomic radius

- a. F, K, Br F, Br, K
 b. Os, Ni, Fe Ni, Fe, Os

2. Rank each of the following in order of DECREASING atomic radius

- a. Cl, Br, Ga Ga, Br, Cl
 b. Ca, Rb, C Rb, Ca, C

Draw the trend for IONIZATION ENERGY



3. Rank each of the following in order of INCREASING ionization energy

- a. O, S, Ge Ge, S, O
 b. Be, Ba, B Ba, Be, B

4. Rank each of the following in order of DECREASING ionization energy

- a. Cl, Cu, Au Au, Cu, Cl
 b. Te, Sb, Xe Xe, Te, Sb

Draw the trend for ELECTRONEGATIVITY



5. Rank each of the following in order of INCREASING electronegativity

- a. Na, K, ~~X~~ K, Na
 b. Fr, Ca, Co Fr, Ca, Co

6. Rank each of the following in order of DECREASING electronegativity

- a. As, Se, Sn Se, As, Sn
 b. ~~X~~ Ru, Hf

7. Place in order from smallest to largest atomic/ ion radius: 3 Fe 1 Fe²⁺ 2 Fe¹⁺

8. Place in order from smallest to largest atomic/ ion radius: 1 O 2 O⁻¹ 3 O⁻²

9. Place in order from smallest to largest atomic/ ion radius: Na 3 Na⁺ 1 Cl 2 Cl⁻¹

10. (Challenge question) Put in order of increasing size (smallest to largest): ¹ K ² Cl⁻¹ ³ Ar

Ar, Cl⁻¹, K

For each of the following exercises, explain your answer.

Exercises:

11. In each of the following pairs, circle the species with the higher first ionization energy:

- (a) Li or Cs: Li *fewer energy levels*
 (b) Cl⁻ or Ar: Ar *very stable*
 (c) Ca or Br: Br *tighter hold on electrons*
 (d) Na⁺ or Ne
 (e) B or Be: Be *tighter hold on electrons*

12. In each of the following pairs, circle the species with the larger atomic radius:

- (a) Mg or Ba: Ba *more energy levels*
 (b) S or S²⁻: S *gained electrons*
 (c) Cu⁺² or Cu: Cu *more electrons*
 (d) He or H⁻: He *gained electrons (fewer protons to pull with)*
 (e) Na or Cl: Na *fewer protons to hold with*

13. Circle the best choice in each list:

- (a) highest first ionization energy: C, N, Si
 (b) largest radius: S²⁻, Cl⁻, Cl
 (c) highest electronegativity: As, Sn, S
 (d) smallest atom: Na, Li, Be
 (e) largest atom: Fe, Co, Ni
 (f) lowest first ionization energy: K, Na, Ca
 (g) highest second ionization energy: Na, Mg, Al
 (h) lowest second ionization energy: Ar, K, Ca

Chemistry: The Periodic Table

Name: _____
 Hour: _____ Date: _____

Directions: Fill in the blanks on the right with the information in the chart below.

actinide series	metal
alkali metal	metalloid
alkaline earth metal	Moseley
atomic mass	noble gas
atomic number	nonmetal
family	period
group	periodic law
halogen	periodic table
lanthanide series	transition element

Dmitri Mendeleev developed a chartlike arrangement of the elements called the _____ (1) _____. He stated that if the elements were listed in order of increasing _____ (2) _____, their properties repeated in a regular manner. He called this the _____ (3) _____ of the elements. The arrangement used today, devised by _____ (4) _____, differs from that of Mendeleev in that the elements are arranged in order of increasing _____ (5) _____. Each horizontal row of elements is called a(n) _____ (6) _____. Each vertical column is called a(n) _____ (7) _____, or, because of the resemblance between elements in the same column, a(n) _____ (8) _____.

In rows 4 through 7, there is a wide central section containing elements, each of which is called a(n) _____ (9) _____. Rows 6 and 7 also contain two other sets of elements that are listed below the main chart. These are called the _____ (10) _____ and the _____ (11) _____, respectively. Each of these elements, as well as those in the first two columns at the left end of the chart, is classified as a(n) _____ (12) _____. Each of the elements at the right side of the chart is classified as a(n) _____ (13) _____. Each of the elements between these two main types of elements, having some properties in common with each, is called a(n) _____ (14) _____.

Each of the elements in the column labeled 1 is called a(n) _____ (15) _____. Each of the elements in the column labeled 2 is called a(n) _____ (16) _____. Each of the elements in column 17 is called a(n) _____ (17) _____. Each of the elements in column 18 is called a(n) _____ (18) _____.

1. periodic table
2. atomic mass
3. periodic law
4. Moseley
5. atomic number
6. period
7. group
8. family
9. transition element
10. lanthanide series
11. actinide series
12. metal
13. nonmetal
14. metalloid
15. alkali metal
16. alkaline earth metal
17. halogen
18. noble gas

Worksheet: Periodic Table Trends

Name: _____

For each of the following, circle the correct element.

Li	Si	S	metal
N	P	As	smallest ionization energy
K	Ca	Sc	largest atomic mass
S	Cl	Ar	member of the halogen family
Al	Si	P	greatest electron affinity
Ge	Al	Si	largest atomic radius
V	Nb	Td	largest atomic number
Te	I	Xe	member of noble gases
Li	Be	Sn	4 energy levels
As	Se	Br	member of alkali metals
Hg	Li	Na	6 valence electrons
Na	Mg	Al	nonmetal
Pb	Bi	Po	member of transition metals
B	C	N	electron distribution ending in s^2p^1
Ca	Sc	Tl	metalloid
			gas at room temperature
			electron distribution ending in s^2d^2

Li belongs to take an extra electron