

Name: _____

Due: _____

Unit 3 Academic Chemistry Study Guide

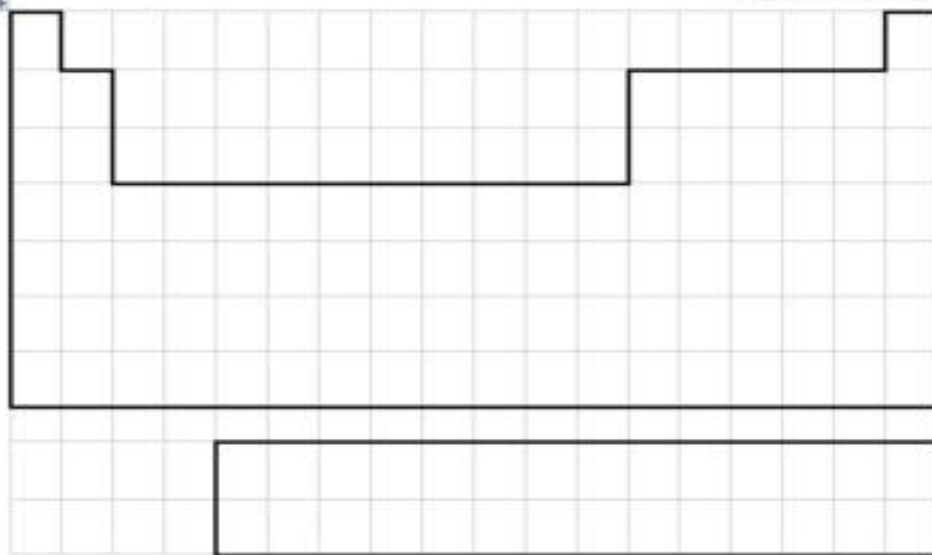
Goals & Standards

- I can describe a brief history of how the periodic table was created.
- I can compare metals and nonmetals.
- I can describe the different properties of alkali metals, alkaline earth metals, inner transition metals, transition metals.
- I can describe the different properties of noble gases, metalloids, and halogens.
- I can explain why the periodic table shows a trend in reactivity, ionization energy, electronegativity, and atomic radius size.
- I can identify periods and groups on the periodic table.
- I can compare anions and cations.

Practice Problems

- 1) True or False: Calcium is a metal.
- 2) True or False: Chlorine is a metal.
- 3) True or False: Nonmetals tend to be brittle.
- 4) True or False: Silicon is an example of a metalloid.
- 5) True or False: Metals are good conductors of heat and electricity.
- 6) True or False: Metals tend to be malleable.
- 7) Name the element in period 3, group 2. _____
- 8) Name the element in period 4 with the same properties as fluorine. _____
- 9) How many energy levels are in atom of phosphorus? _____
- 10) What will be the charge of magnesium when it becomes an ion? _____
- 11) What will be the charge of nitrogen when it becomes an ion? _____
- 12) What will be the charge of aluminum when it becomes an ion? _____

Some groups have special names. You should memorize these. Label the periodic table below with these areas!



- 13) Group 1 – Alkali Metals
- 14) Group 2 – Alkaline Earth Metals
- 15) Group 17 – Halogens
- 16) Group 18 – Noble Gases
- 17) D Block – Transition Metals
- 18) F Block – Inner Transition Metals
- 19) Stairstep – Metalloids
- 20) Left of Stairstep – Metals
- 21) Right of Stairstep – Nonmetals

- 22) Circle the element with the higher ionization energy: boron carbon
- 23) Circle the element with the lower electronegativity: bromine chlorine
- 24) Circle the element with the larger atomic radius: sodium potassium
- 25) Circle the element with the higher electronegativity: lithium beryllium
- 26) Circle the element with the smallest atomic radius: nitrogen oxygen
- 27) Circle the larger particle: F F⁻¹
- 28) Circle the smaller particle: Na Na⁺¹
- 29) Circle the particle that would have the smallest IONIC radius: Na Rb S Br

NCFE Multiple Choice Practice

- 30) Which three elements are arranged according to **increasing** electronegativity values?
- N, C, B
 - N, P, As
 - N, O, F
 - F, O, N
- 31) Which group of elements is arranged in order of increasing atomic radii?
- O, S, Se, Te
 - Fe, Ni, Ag, Au
 - Rb, K, Na, Li
 - Y, Zr, Nb, Mo
- 32) How is iron (Fe) classified based on its location on the periodic table?
- a nonmetal
 - an alkaline earth metal
 - a transition metal
 - an alkali metal
- 33) Which group of elements typically has the HIGHEST electronegativities?
- Inner transition metals
 - Halogens
 - Noble gases
 - Alkali metals
- 34) Oxygen, nitrogen, and chlorine are all examples of _____.
- Metals
 - Nonmetals
 - Metalloids
 - Noble Gases
- 35) What atom has the largest atomic radius in Group 2?
- Fr
 - Ra
 - Ac
 - Rf
- 36) Why does sodium have a higher ionization energy than cesium?
- Sodium has more protons than Cesium.
 - Sodium has a larger atomic mass.
 - Sodium's electrons are closer to the nucleus.
 - Cesium's electrons are closer to the nucleus.