**Organization of the Periodic Table**

1. Elements may react to form ions that have electron configurations like those of the noble gases.
2. Which element is in group 15 and period 2? \_N\_\_\_\_
3. Which elements are halogens? What charge of ions will they make? Why (what is happening)?

F, Cl, Br, I (sometimes At is included) 🡪 they will make (-1) ions because they each will gain an electron

1. Which elements are alkaline earth metals? What charge of ions will they make? Why (what is happening)?

Be, Mg, Ca, Sr, Ba, Ra 🡪 they will make (+2) ions because they will each lose two electrons

1. List at least three elements that are metals. List three characteristics of metals.

Anything below and to the left of the stairstep line. Malleable, ductile, good conductors of heat and electricity, tend to lose electrons when forming ions.

1. List at least three elements that are nonmetals. List three characteristics of nonmetals.

Anything above and to the right of the stairstep line. Poor conductors of heat and electricity, tend to gain electrons when forming ions, brittle, many are gases at room temperature.

1. Which elements are the metalloids? B, Si, Ge, As, Sb, Te (sometimes Po and At are included)
2. Describe electronegativity. The ability of an atom to attract electrons in a chemical bond (how tightly at atom is able to hold on to electrons).
3. What happens to the atomic radius as you move left to right across one period? Why? Radius decreases because there are more protons and electrons pulling on one another (higher electronegativity) without gaining any more energy levels.
4. Which element has the highest electronegativity on the whole table? F
5. An atom is chemically stable when all of the orbitals in the outermost energy level are filled.
6. Which group of elements has NO electronegativity and VERY HIGH ionization energy? Why? Noble Gases, no electronegativity because they don’t bond (see definition of electronegativity), high ionization energy because they are so stable by themselves it is very very hard to remove an electron.
7. Is an oxygen ion (oxide) bigger or smaller than an oxygen atom? Why? Oxide is bigger because it has gained two electrons.
8. Is a potassium ion bigger or smaller than a potassium atom? Why? Potassium ion is smaller because it has lost an electron.
9. Label the regions of the periodic table with group and period numbers as well as group names. Also label the s, p, d, and f orbital blocks.

Group 1 – alkali metals, Group 2 – alkaline earth metals, d-block – transition metals, group 17 – halogens, group 18 – noble gases, metalloids – see above.

Groups 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

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