

AP Chemistry Summer Assignment #4: The Periodic Table (Do #11!)

Label the blank periodic table as described below.

- Put the numbers of each group/family on top of each column (both versions).
- Put the numbers of each period next to each row. The last 2 columns are NOT periods 8 and 9, but instead fit into rows 6 and 7.
- Put the name of each family on top of the columns. Here are the names:
 - Group 1/1a: alkali metals
 - Group 2/2a: alkaline earth metals
 - Group 3 - 12: transition metals
 - Group 13/3A: boron family
 - Group 14/4A: carbon family
 - Group 15/5A: nitrogen family
 - Group 16/6A: oxygen family
 - Group 17/7A: halogens
 - Group 18/8A: noble gases
- Draw the line separating the metals from the nonmetals. Shade in the metalloids.
- Each group forms ions in similar ways. Metals tend to lose electrons to become positively charged ions, or cations. Turn your periodic table sideways and write across each group of metals the following words:
 - Group 1/1a: lose 1 electron
 - Group 2/2a: lose 2 electrons
 - Group 3 - 12: lose a varying number of electrons (you can write this one across all the transition metals)
 - Group 13/3A: (only write on the metals!) lose 3 electrons
 - Group 14/4A: (only write on the metals!) lose 2 or 4 electrons
 - Group 15/5A: (only write on the metals!) lose 3 or 5 electrons
- Write the charge that each family/group tends to form on top of each column. (Do these charges make sense to you based on the number of electrons lost?)
 - Group 1/1a: +1
 - Group 2/2a: +2
 - Group 3 - 12: varying charges (+1, +2, +3, +4, +5)
 - Group 13/3A: +3
 - Group 14/4A: +2, +4
 - Group 15/5A: +3, +5
- Nonmetals tend to gain electrons to become ions. Write the following across the NONMETALS only of each group.
 - Group 18/8A: don't gain or lose electrons
 - Group 17/7A: gain 1 electron
 - Group 16/6A: gain 2 electrons
 - Group 15/5A: gain 3 electrons
 - Group 14/4A: gain 4 electrons
- Write the charge that each family/group tends to form on top of each column. (Do these charges make sense to you based on the number of electrons gained?)
 - Group 18/8A: 0 (no ions formed)
 - Group 17/7A: -1
 - Group 16/6A: -2
 - Group 15/5A: -3 (write this after the other charges like this: +3, +5/ -3)
 - Group 14/4A: -4 (write this after the other charges like this: +2, +4/ -4)
- Label the bottom 2 rows "inner transition metals". They, too, make variable ions.
- Label the top row of the inner transition metals "Lanthanide series" and the bottom row "Actinide series" (do you know why they are named this? You should be able to figure it out!)
- *****Pick out the element that matches the last 2 numbers of your ID.** What is it? _____
How many protons does it have? _____ neutrons? _____ electrons? _____
Is it a metal or a nonmetal? _____ What family is it in? _____
Does it tend to gain electrons or lose electrons? _____ how many? _____
What type of ion does it form, cation or anion? _____ what charge? _____
Write down 5 interesting facts (look at webelements.com) about this element:

Periodic Table of the Elements

H																	He	
Li	Be											B	C	N	O	F	Ne	
Na	Mg											Al	Si	P	S	Cl	Ar	
K	<i>Ca</i>	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
Cs	Ba	<small>57-70</small>	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	<small>89-102</small>	Lr	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Uun	Fl	Uup	Lv	Uus	Uuo

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La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
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Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No
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