

Valence Electrons Worksheet

Chem. 1

Name: _____ Class: _____

1. What are valence electrons?
2. What does the octet rule state?
3. What is electron dot notation? (Give an example)

Write the electron notation and orbital fill notation for the following elements. Then, circle all valence electrons on both notations, write the electron dot notation for the element and identify the group number of the element.

4. Ca

5. Sr

6. I

7. Br

8. P

9. As

10. Co

11. Ni

12. Pt

13. What connection can be made between number of valence electrons and group #?

1. What is an anion? Which families of the main group elements have the greatest tendency to form anions?
2. What is a cation? Which families of the main group elements have the greatest tendency to form cations?
3. What is the electron configuration of the cation, Ca^{+2} ?
4. What is the electron configuration of the anion, Cl^{-1} ?
5. Define valence electrons.
6. Fill in the following table:

Element	Group	Block	Period	# Valence Electrons	Valence Electron Configuration
Ba					
As					
Al					
Br					
Li					
Ne					

* outer shell!

Name _____

Period _____

Date _____

Periodically Puzzling

You have been given a list of code letters and clues that correspond to the representative elements in the first four periods of the periodic table. Place each code letter in its proper space in the partial periodic table below. NOTE: The code letters fall into these groups on the periodic table: JKQ, WNVG, IAL, EPFZ, YBR, ODS, CXU, THM.

CODE LETTER	CLUE
V	has largest ionization energy in its period.
E	is the largest atom in its period.
U	has 7 valence electrons in the second energy level.
D	has 5 valence electrons.
J	has 2 valence electrons.
T	has 6 valence electrons in the fourth energy level.
A	has 4 valence electrons in the second energy level.
R	has an atomic number one less than A.
O	has an atomic number one more than A.
S	has 18 more protons in its nucleus than D.
F	has a single electron in the first energy level.
Y	has atoms that are larger than the atoms of B.

CODE LETTER	CLUE
I	has the smallest first ionization energy in its group.
C	has atoms that are larger than those of U, but smaller than those of X.
V	has one more proton in its nucleus than U.
H	has the largest first ionization energy in its group.
G	has two protons in each atom.
N	has a full third energy level.
J	has valence electrons in the second energy level.
Q	has an atomic mass greater than that of J and less than that of K.
E	has an atomic number less than that of Z but greater than that of P.
Z	is the largest atom in its group.

	1A							8A
	1							18
1		2A	3A	4A	5A	6A	7A	
		2	13	14	15	16	17	
2								
3								
4								