Periodic Trends Puzzle

Purpose: to solve a periodic table puzzle, using period trends in atomic radius, electronegativity, and ionization energy (and other atomic info already learned!)

Procedure: Use the following clues to place elements A through Z in the correct positions on the periodic table provided. Use a PENCIL so you can change the positions, if necessary. Only Groups 1,2, 13-18 are on this table (the representative elements). Periodic trends are in your notes or in Chapter 5.

Clues:

The following groups are together: ECF, RLBT, YXS, HIP, VMQ, GKU, ZNA, DOWJ
(in the same Group, but non necessarily in that order)

A has the valence electron configuration s^2p^1
B has only one energy level filled
C has the highest electronegativity in its group
D has the lowest atomic number of metals in this group
E has the valence electron configuration s^2p^3
F has the lowest ionization energy in its group
G has the highest atomic mass in its group
H is an alkaline earth metal
I has the smallest atomic radius in its group
J is the only element in this group which is not a metal
K is a halogen
L is a noble gas
M has the highest electronegativity in its group
N has the highest electronegativity in its group
O has the highest atomic mass in its group
P has three energy levels occupied
Q has four valence electrons
R has three energy levels occupied
S has six valence electrons
T has the largest atomic radius in its group
U is in the same period with W and P
V is in the same period with R
W is an alkali metal
X has the lowest atomic radius in its group
Y has a smaller ionization energy than S
Z has the smallest electronegativity in its group

QUESTIONS (answer in complete sentences on the BACK OF DATA SHEET):

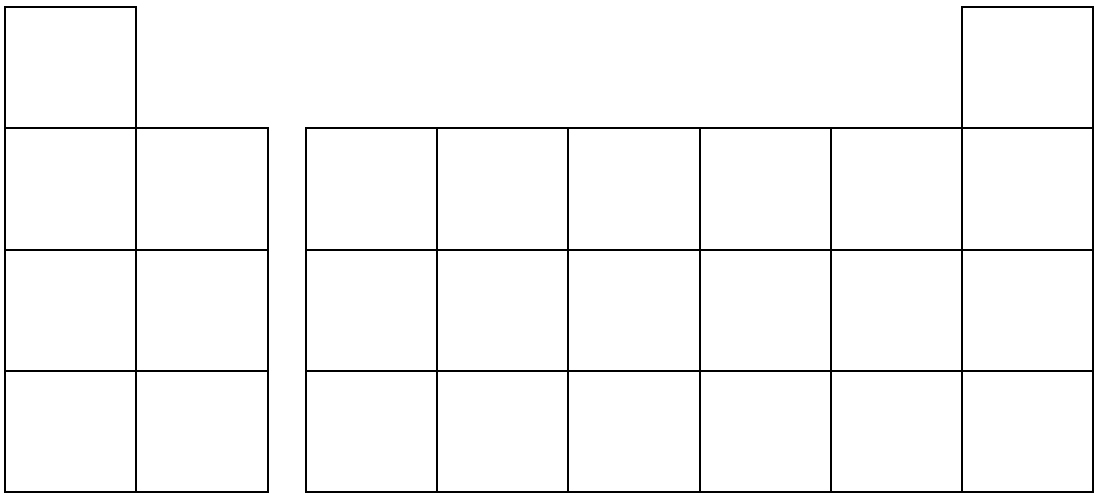
1. As you go from left to right across a period, does the atomic radius increase or decrease? Why?

2. As you go down a group, does the atomic radius increase or decrease? Why?
3. As you go from left to right across a period, does the ionization energy increase or decrease? Why?

4. As you go down a group, does the ionization energy increase or decrease? Why?

5. Generally, where is the highest electronegativity found on the periodic table?
6. Generally, where is the lowest electronegativity found on the periodic table?
7. Elements within the same group have the same number of . . .
8. Elements in the same period have the same number of . . .
9. Define atomic radius.
10. Define ionization energy.
11. Define electronegativity.
12. Define electron affinity.
13. Define ionic radius.
14. Which group of elements have no assigned electronegativity, because they are generally nonreactive (inert) and do not have a tendency to attract electrons?

DATA SHEET
PERIODIC TRENDS PUZZLE



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