CP Chemistry Periodic Table Trends Lab

Pick one person to work with you on this lab. Hand in one copy of each graph along with one copy of the summary sheet with both of your names on it.

Graphing:

1. Prepare four graphs using Excel and the data in your lab materials.
    a. Atomic Number vs. Atomic Mass
    b. Atomic Number vs. Electronegativity
    c. Atomic Number vs. First Ionization Energy
    d. Atomic Number vs. Atomic Radius

2. Place atomic numbers on the x-axis and the other property on the y-axis.

3. Use the chart wizard to create your graphs
    a. Use XY Scatter with data points connected by a smooth line
    b. Title each graph: "Atomic Number vs. _____" Include your names in the title!
    c. Correctly label the X & Y axis.
    d. Delete the legend and grid lines.
    e. Add data labels to the X values.
    f. Print one copy of each of the four graphs. You may cut and paste them to save paper (no more than two graphs per side).

Analysis:

1. On each graph circle the data points for **elements in one period**.
2. On each graph box the data points for **one family of metals**.
3. On each graph triangle the data points for **one family of nonmetals**.
4. Use your graphs to complete the Summary Sheet

For Grading:

1. Hand in one completed copy (per lab group) of the Summary Sheet!
2. Attach all graphs to the back of the summary sheet, marked as indicated!
3. Talking with others about possible answers is permissible. Do not copy each others answers verbatim!

CHEM DATA

Symbol	atomic #	atomic mass	Melting Point, (°C)	density (g/mL)	Electro-negativity	First Ion. Energy (kJ/mol)	Atomic Radius (pm)
H	1	1.008	-259.1	0.00007	2.1	1312	37
He	2	4.003	-272.2	0.00018		2377	32
Li	3	6.941	180.5	0.54300	1	520	134
Be	4	9.012	1278	1.85000	1.5	899	90
B	5	10.81	2079	2.34000	2	801	82
C	6	12.01	3367	2.25000	2.5	1086	77
N	7	14.01	-209.9	0.00125	3	1420	75
O	8	15.99	-218.4	0.00143	3.5	1314	73
F	9	18.99	-219.8	0.00170	4	1681	72
Ne	10	20.18	-248	0.00090		2088	71
Na	11	22.99	97.8	0.97100	0.9	495	154
Mg	12	24.31	649	1.74000	1.2	735	130
Al	13	26.98	660	2.70000	1.5	580	118
Si	14	28.09	1410	2.33000	1.8	780	111
P	15	30.97	44.1	1.82000	2.1	1060	106
S	16	32.07	112.8	2.07000	2.5	1005	102
Cl	17	35.45	-101	0.00321	3	1255	99
Ar	18	39.95	-189.2	0.00178		1527	97
K	19	39.1	63.25	0.86000	0.8	419	196
Ca	20	40.08	839	1.55000	1	590	174
Ga	31	69.72	29.8	5.90000	1.6	579	126
Ge	32	72.59	947.4	5.32000	1.8	762	122
As	33	74.92	817	5.73000	2	947	119
Se	34	78.96	217	4.79000	2.4	941	116
Br	35	79.9	-7.2	3.12000	2.8	1140	114
Kr	36	83.8	-157	0.00374		1356	110
Rb	37	85.47	38.9	1.53000	0.8	409	211
Sr	38	87.62	769	2.54000	1	550	192
In	49	114.82	156.6	7.31000	1.7	558	144
Sn	50	118.69	232	7.31000	1.8	709	141
Sb	51	121.75	631	6.69000	1.9	834	138
Te	52	127.6	449.5	6.24000	2.1	869	135
I	53	126.9	113.5	4.93000	2.5	1008	133
Xe	54	131.3	-111.8	0.00589		1176	131

Periodic Table Trends Lab

Names _____

_____

Period ____

Electronegativity

1. What is electronegativity?

2. This trend _____ across a period from left to right. Explain the reason for this tendency.

3. This trend _____ in a family from top to bottom. Explain the reason for this tendency.

Ionization Energy

1. What is ionization energy?

2. This trend _____ across a period from left to right. Explain the reason for this tendency.

3. This trend _____ in a family from top to bottom. Explain the reason for this tendency.

Atomic Mass

1. What is atomic mass?

2. This trend _____ across a period from left to right. Explain the reason for this tendency.

3. This trend _____ in a family from top to bottom. Explain the reason for this tendency.

Atomic Radius

1. What is atomic radius?

2. This trend _____ across a period from left to right. Explain the reason for this tendency.

3. This trend _____ in a family from top to bottom. Explain the reason for this tendency.