

Periodicity Graphs; SC4

Directions: Construct three computerized graphs using the data from the table below. If the computers are not working, you will need to make these on separate sheets of graph paper. The purpose of this activity is to understand the periodic trends and periodicity of the periodic table.

Graph 1: electronegativity (on y-axis) versus atomic number (on x-axis)

Graph 2: first ionization energy (on y-axis) versus atomic number (on x-axis)

Graph 3: atomic radius (on y-axis) versus atomic number (on x-axis)

On each graph, use a connected line between data points. The title for each graph must be descriptive and all axes must be labeled with units. For each graph, include a short explanation which:

(A) defines the property on the y-axis,

(B) discusses the general trend of the property across the rows of the periodic table (Periodic Trends), and

(C) discusses the general trend of the property down the columns of the periodic table (Group Trends).

Staple these descriptions to the three graphs. More information on this subject can be found in Chapter 7 of your text book (Zumdahl y Zumdahl).

Periodic Trends - Element Data Table

Element Symbol	Atomic Number (use on x-axis)	Electronegativity (no units)	First Ionization Energy (kJ/mole)	Atomic Radius (picometers)
H	1	2.1	1312	37
He	2	--(skip)	2371	50
Li	3	1.0	520	140
Be	4	1.5	900	90
B	5	2.0	800	80
C	6	2.5	1086	77
N	7	3.0	1402	71
O	8	3.5	1314	66
F	9	4.0	1681	64
Ne	10	--(skip)	2080	70
Na	11	0.9	495.8	157
Mg	12	1.2	737.6	136
Al	13	1.5	577.4	143
Si	14	1.8	786.2	118
P	15	2.1	1012	109
S	16	2.5	999.6	103
Cl	17	3.0	1255	91
Ar	18	--(skip)	1520	94
K	19	0.8	418.8	196
Ca	20	1.0	589.5	174