

PERIODIC TRENDS – A GRAPHICAL ANALYSIS

You must hand in: A word document with pre-work questions, excel graphs, and analysis questions.

Introduction: Elements on the periodic table are arranged in such a way that they exhibit patterns in their properties. In this activity, you will graph three properties and analyze the patterns. You will determine trends for the following properties: atomic radius, electronegativity, and ionization energy.

Pre-Work

Using the web resource listed below, define the following terms **IN YOUR OWN WORDS** in a word document.

http://home.nas.net/~dbc/cic_hamilton/dictionary/a.html

- a) Electronegativity
- b) Atomic Radius
- c) Ionization Energy
- d) Period
- e) Group

Graph #1: Electronegativity

1. Open a spreadsheet in Microsoft Excel
2. In column A, going down, type the numbers 1-18. These numbers represent the atomic numbers for the first 18 elements on the periodic table.
3. In column B, going down, type the following set of numbers (in order!):
2.1, 0, 1, 1.5, 2, 2.5, 3, 3.5, 4, 0, 0.9, 1.2, 1.5, 1.8, 2.1, 2.5, 3, 0
4. Highlight all of the data in columns A and B.
5. Click on Insert. Click on Chart.
6. Click on XY (Scatter).
7. Under Chart Sub-type, Click on the third graph down in the first column (Scatter with data points connected by lines)
8. Click Next.
9. Click Finish. Your graph should appear next to your two columns of data.
10. Right Click on the graph. Scroll down to "Chart Options". Enter the following:
Chart Title: Electronegativity
Value X-axis: Atomic Number
Value Y-axis: Electronegativity
Click OK.
11. Right click on the x-axis. Click on "Format Axis". Go under the scale tab, if it is not already up. Change the major unit to 1. Click OK.
12. Right click on the y-axis. Click on "Format Axis". Change the major unit to 0.4. Click OK.
13. Click on Series. Press Delete.
14. Graph #1 is now complete. You can drag the corners to enlarge or expand your graph.
15. Right click on the graph. Scroll down to "copy".
16. In the open word document (where you answered the pre-work), ***paste the graph into the word document.***
17. Under the graph answer the questions below ***in complete sentences.***