A GRAPHING EXPERIENCE!

Electronegativity vs. Atomic Number

Purpose: To graphically represent the variation in atomic radius within the first 36 elements on the periodic table.

Questions to consider:

1. What is "Electronegativity?"
2. How does Electronegativity vary within a horizontal row on the periodic table?
3. How does Electronegativity vary within a column on the periodic table?
4. What causes these changes?

Directions: READ THESE !!!!! **USE CHROME!!!**

Part A ---- Getting the DATA

1. Open a google sheet.
2. In a separate window in the browser, open howechem.net
3. Go to the homework section of the website and click on the Electronegativity table.

4. In column A of the google sheet, enter the atomic numbers of the **first 20** elements on the periodic table.
5. In column B, enter the Electronegativity data from the web link above

Part B ---- Making the GRAPH

1. Highlight all of the information on the spreadsheet.
2. Under the "insert" menu, choose "chart."

3. Click on the "CHART TYPES" tab at the top of the chart editor window.
4. Choose the first option under "Line."

5. Click the BOX for "use column A as labels."
6. Click on the "CUSTOMIZATION" tab.

7. Title the graph as follows: Δ Electronegativity Vs. ATOMIC NUMBER
   (Δ is option or alt J depending on your keyboard.)
8. Scroll down to the AXIS Section and label the horizontal axis "Atomic Number."

9. Use the drop down menu and label the Y axis " Electronegativity"
10. Scroll down to series and make the point size 10 px.

11. Select your favorite point shape
12. INSERT! and PRINT one per person.

Questions:

1. What is the **biggest** element on the graph? (atomic radius) _____
2. What is the **smallest** element in period 2? (atomic radius) _____
3. Which of these has the largest Electronegativity? _____
4. Which of these has the smallest Electronegativity? _____

5. How does Electronegativity change from Li to F? _____

6. How does Electronegativity change from K to Ca? _____

7. How does Electronegativity change from Na to Cl? _____

8. How does Electronegativity change within any row on the periodic table? _____

9. Arrange the following from LOW Electronegativity to HIGH Electronegativity: Li, K, Na, H _____

10. Arrange the following from LOW IE to HIGH Electronegativity: Ca Be Mg _____

11. Which has a higher Electronegativity? O or S? _____

12. How does Electronegativity change going down a column on the periodic table? _____

13. Which has a higher Electronegativity? S or Si? _____

14. Which has more protons? S or Si? _____

15. Which has more protons? Na or Cl? _____

16. Which is has a higher Electronegativity ? Na or Cl? _____

17. SO FAR, how does the number of protons affect Electronegativity? _____

18. Which has more protons: Na or K? _____

19. Which has a higher Electronegativity? Na or K? _____

20. DOES YOUR ANSWER TO 17 still MAKE SENSE? _____

21. WHAT OTHER FACTOR (besides protons) might affect Electronegativity? _____

22. What is the effect of inner shell electrons on the outer shell? _____

SUMMARY:

As long as atoms are in the same horizontal row, more protons will cause atoms to be _____ and their Electronegativity to be _____.

When moving down a column, the addition of _____ _____ SHIELDS the outer shell from the _____, which causes the atom to be _____ even though there are more protons. This causes their Electronegativity to be _____.

BOTTOM LINE:

Atoms get _____ when moving from left to right on the periodic table, which causes their Electronegativity to be _____ and atoms get _____ when moving from top to bottom, which causes their Electronegativity to be _____.