

## Periodic Table: Reading Guide Chapter 13

Directions: Your responses to the following statements need to be completed on a separate sheet of paper.

1. Describe how Mendeleev constructed/organized the first periodic table.
2. Describe how Henry Moseley arranged the elements in the periodic table.
3. Relate the terms **group** and **period** to the periodic table.
4. What does the periodic law state? How is this significant to chemists?
5. Which of the three subatomic particles plays the greatest part in determining the physical and chemical properties of an element?
6. Summarize the 4 different categories of elements listed on pages 357-58. Include their general electron configurations.
7. Use figure 13.4 to write the electron configurations for the following elements:  
a. B                      b. Mg                      c. V                      d. Sr
8. Define atomic radius and discuss one method used to measure it.
9. Explain how atomic radii changes as you move down a group in the periodic table.
10. Explain how atomic radii changes as you move across a period in the periodic table.
11. Explain why fluorine has a smaller atomic radius than both oxygen and chlorine.
12. Arrange the following elements in order of decreasing atomic size: S, Cl, Al, Na.
13. Define ionization energy and write an equation which illustrates the ionization of a sodium atom.
14. Explain why the second and third ionization energies are always greater than the first ionization energy.

15. Explain how the first ionization energy changes as you move down a group in the periodic table.
16. Explain how the first ionization energy changes as you move across a period in the periodic table.
17. Indicate which elements in each of the following pairs has the greatest first ionization energy. Explain your choice.
  - a. Li and B
  - b. Mg and Sr
  - c. Cs and Al
18. Examine page 365 and explain what is happening as sodium becomes an ion (loses an electron) and chlorine becomes an ion (gains an electron).
19. Explain how ionic radii changes as you move down a group in the periodic table.
20. Explain how ionic radii changes as you move across a period in the periodic table. (be careful here)
21. Define electronegativity and include a discussion of the scale that is used.
22. Which elements are not assigned electronegativity values. Explain why.
23. Explain how electronegativity changes as you move down a group in the periodic table.
24. Explain how electronegativity changes as you move across a period in the periodic table.