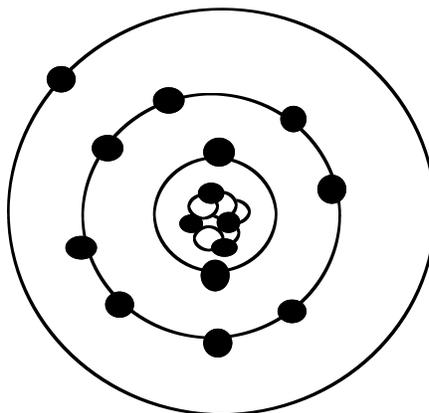
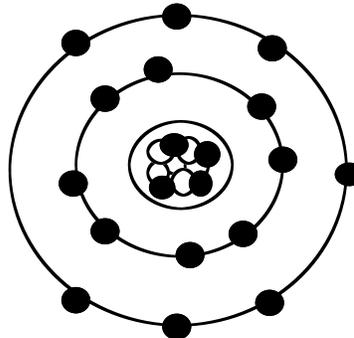


Two Trendy Elements

You can compare the sizes and chemical reactivities of two atoms by looking at their location on the periodic table. The two diagrams at the right show the relative sizes of a sodium atom and a chlorine atom. Use your knowledge of periodic trends to answer the following questions.



Sodium Atom



Chlorine Atom

1. Both sodium and chlorine are in the same period on the periodic table. Explain the difference in their sizes.

2. Predict the charge that an ion of each element would have. Explain your answer.

3. Compare the amount of energy required to remove the first electron from each of these atoms.

4. Compare the electronegativities of the atoms.

5. Draw the ion for each atom. Be sure to represent accurately their size relative to the original atoms. Propose a way they can bond to form NaCl.

Periodic Trends

Use the periodic table and your knowledge of periodic trends to answer the following questions.

Which atom in each pair has the larger atomic radius?

- _____ 1. Li or K
- _____ 2. Ca or Ni
- _____ 3. Ga or B
- _____ 4. O or C
- _____ 5. Cl or Br
- _____ 6. Be or Ba
- _____ 7. Si or S
- _____ 8. Fe or Au

Which atom or ion in each pair has the larger electronegativity?

- _____ 9. Na or O
- _____ 10. Be or Ba
- _____ 11. Ar or F
- _____ 12. Cu or Ra
- _____ 13. I or Ne
- _____ 14. K or V
- _____ 15. Ca or Fr
- _____ 16. W or Se

5-3 Review and Reinforcement (continued)

Write the charge that each of the following atoms will acquire when it has a complete set of valence electrons.

- _____ 17. O
- _____ 18. Na
- _____ 19. F
- _____ 20. N
- _____ 21. Ca
- _____ 22. Ar

1. Define *atomic radius*.

2. Why do atoms get smaller as you move across a period?

3. Contrast ionization energy and electronegativity. In general, what can you say about these values for metals and nonmetals?

4. Explain why noble gases are inert and do not form ions.

5. Define the term electronegativity. What is the periodic trend for electronegativity?
