

**Worksheet 4-3**  
**Periodic Trends**

*Glencoe Chemistry pp.163-169*

Name \_\_\_\_\_

Period \_\_\_\_\_

**ATOMIC RADIUS**

1. What trend in atomic radius do you see as you go down a group/family on the periodic table?
2. What causes this trend?
3. What trend in atomic radius do you see as you go across a period/row on the periodic table?
4. What causes this trend?
5. Circle the atom in each pair that has the largest atomic radius.
  - a) Al B
  - b) S O
  - c) Br Cl
  - d) Na Al
  - e) O F
  - f) Mg Ca

**IONIZATION ENERGY**

6. Define ionization energy.
7. Is it easier to form a positive ion with an element that has a high ionization energy or an element that has a low ionization energy?
8.  $\text{Na}^+$  and  $\text{Mg}^{2+}$  ions each have ten electrons surrounding their nuclei. Which ion would you expect to have the larger radius? Explain your answer.
9.
  - a. Explain why it is harder to remove an inner shell electron than a valence electron from an atom.
  - b. Explain why sodium forms a 1+ ion ( $\text{Na}^+$ ) but magnesium forms a 2+ ion ( $\text{Mg}^{2+}$ ).
10. What trend in ionization energy do you see as you go down a group/family on the periodic table?