

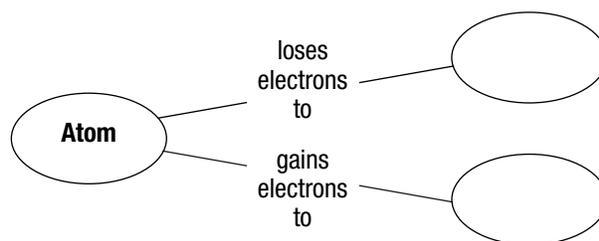
## Chapter 6 Chemical Bonds

**Section 6.1 Ionic Bonding****(pages 158–164)**

*This section describes the formation of ionic bonds and the properties of ionic compounds.*

**Reading Strategy (page 158)**

**Sequencing** As you read, complete the concept map to show what happens to atoms during ionic bonding. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

**Stable Electron Configurations (page 158)**

- Describe the type of electron configuration that makes an atom stable and not likely to react. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Describe an electron dot diagram. \_\_\_\_\_  
\_\_\_\_\_

**Ionic Bonds (pages 159–161)**

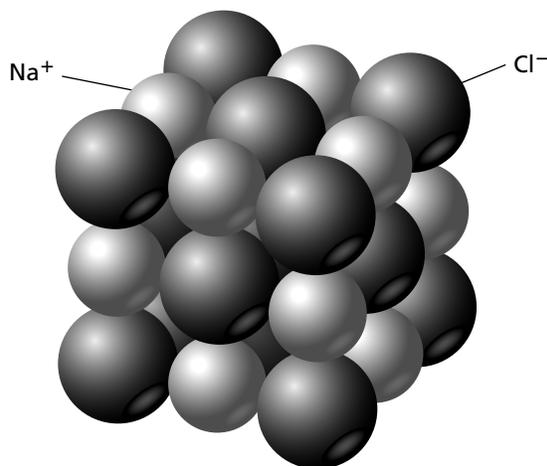
- Some elements achieve stable electron configurations through the transfer of \_\_\_\_\_ between atoms.
- By losing one valence electron, a sodium atom achieves the same electron arrangement as an atom of \_\_\_\_\_.
- Circle the letter that states the result of a sodium atom transferring an electron to a chlorine atom.
  - Each atom ends up with a more stable electron arrangement.
  - The sodium atom becomes more stable, but the chlorine atom becomes less stable.
  - The chlorine atom becomes more stable, but the sodium atom becomes less stable.
  - Each atom ends up with a less stable electron arrangement.
- Is the following sentence true or false? An ion is an atom that has a net positive or negative electric charge. \_\_\_\_\_
- An ion with a negative charge is called a(n) \_\_\_\_\_.

**Chapter 6 Chemical Bonds**

8. An ionic bond forms when \_\_\_\_\_ are transferred from one atom to another.
9. Is the following sentence true or false? The lower the ionization energy, the easier it is to remove an electron from an atom.  
\_\_\_\_\_

**Ionic Compounds (pages 161–164)**

10. Circle the letter of each piece of information provided by the chemical formula of an ionic compound.
- which elements the compound contains
  - the charge on each ion in the compound
  - how the ions are arranged in the compound
  - the ratio of ions in the compound
11. Circle the letter of the correct answer. The formula for magnesium chloride is  $\text{MgCl}_2$ . The charge on the magnesium ion is  $2+$ . What is the charge on each chloride ion?
- |         |         |
|---------|---------|
| a. $2-$ | b. $1-$ |
| c. $0$  | d. $1+$ |



12. Look at the arrangement of ions in a sodium chloride crystal. How many sodium ions surround each chloride ion in this three-dimensional structure?
- |      |      |
|------|------|
| a. 3 | b. 4 |
| c. 6 | d. 8 |
13. The shape of an ionic crystal depends on \_\_\_\_\_.
14. Identify two factors that determine the arrangement of ions in an ionic crystal.
- |          |          |
|----------|----------|
| a. _____ | b. _____ |
|----------|----------|
15. Is the following sentence true or false? The attractions among ions within a crystal lattice are weak. \_\_\_\_\_