Name Date Class

SECTION 1 Study Guide

# Why do atoms combine?

Chapter 1

**Directions:** *Match the term from the word bank with each phrase below.*

| | | | |
|---|---|---|---|
| alkali metals | electron cloud | fourth | nucleus |
| charged | electron dot diagram | halogens | proton |
| chemical bond | empty space | neutral | stable |
| down | first | noble gases | up |

_____ 1. the energy level that can hold only 2 electrons

_____ 2. what an atom will be if it has a different number of protons and electrons

_____ 3. the energy level that can hold 32 electrons

_____ 4. what an atom may be if it has a different number of protons and electrons

_____ 5. the group that needs one more electron to fill its outer energy level

_____ 6. an area of space around the nucleus where electrons are likely to be

_____ 7. the group that has one electron in its outer level

_____ 8. the area where protons and neutrons can be found

_____ 9. the force that holds atoms together

_____ 10. the most stable group on the periodic table

_____ 11. what makes up most of an atom

_____ 12. the particle that must be present in the same number as electrons in a neutral atom

_____ 13. the reactivities of alkali metals increase as you go this direction in the group

_____ 14. the reactivities of noble gases increase as you go this direction in the group

_____ 15. a handy way to represent the outer electrons of an atom

_____ 16. atoms join with each other to become more like this

**Directions:** *Explain why, even though electrons closer to the nucleus have a lower energy than electrons further away from the nucleus, it takes more energy to remove the electrons closer to the nucleus.*

17. _____

_____

Name Date Class

SECTION 1 Reinforcement

# Why do atoms combine?

**Directions:** *Complete the sentences below using the following terms. Some of the terms may not be used.*

| | | |
|---|---|---|
| **atomic structure** | **electron dot diagram** | **outer energy level** |
| **electron** | **element families** | **proton** |
| **electron cloud** | **nucleus** | **period** |

1. An element is stable with eight electrons in its _____.
2. The closer a(n) _____ is to the nucleus, the stronger the attractive force.
3. An atom's _____ contains its protons and neutrons.
4. A(n) _____ model with dark bands representing energy levels shows where an atom's electrons are most likely to be.
5. The chemical symbol for an element surrounded by as many dots as there are electrons in its outer energy level is called a(n) _____.
6. Columns in the periodic table are known as _____.
7. The number of electrons in a neutral atom increases by one as you go from left to right across a _____ in the periodic table.
8. Each element has a different number of protons and electrons, so each has a different _____.

**Directions:** *Answer the following questions.*

9. Explain how the arrangement of electrons in an atom is related to the periodic table.

_____

_____

_____

_____

_____

10. Use the periodic table to construct electron dot diagrams for the following elements: aluminum, magnesium, sulfur, and bromine.

Meeting Individual Needs