Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading B

Section: Electrons and Chemical Bonding (pp. 226–229)

COMBINING ATOMS THROUGH CHEMICAL BONDING

sugar C6H12O6

1. Which of the following substances results from combining atoms of carbon, hydrogen, and oxygen?
- **a.** sugar
- **b.** salt
- **c.** water
- **d.** sulfuric acid

Electrons are not destroyed in bonding

2. Which of the following is NEVER true about electrons when chemical bonds form?
- **a.** Electrons are shared.
- **b.** Electrons are lost.
- **c.** Electrons are destroyed.
- **d.** Electrons are gained.

chemical bond

3. Which of the following is an interaction that holds two atoms together?
- **a.** a chemical hold
- **b.** a chemical bond
- **c.** a chemical interaction
- **d.** a bond of chemicals

4. The joining of atoms to form new substances is called _____chemical bonding_____.

5. People can use _____models_____ to discuss how and why atoms form bonds.

ELECTRON NUMBER AND ORGANIZATION

atomic number

6. Which of the following is the same as the number of protons in an atom?
- **a.** valence number
- **b.** atomic number
- **c.** chemical number
- **d.** ionic number

_____6_____

7. How many valence electrons are in an oxygen atom?
- **a.** 2
- **b.** 4
- **c.** 6
- **d.** 8

valence electrons

8. What do elements within the same group have the same number of?
- **a.** valence electrons
- **b.** protons
- **c.** neutrons
- **d.** atoms

Match the correct description with the correct term. Write the letter in the space provided.

valence electron **9.** an electron in the outermost energy level

atomic number **10.** number of protons in an atom

group **11.** family on the periodic table to which an element belongs

- **a.** group
- **b.** valence electron
- **c.** atomic number

12. Which electrons in an atom make chemical bonds?

The valence electrons are involved in chemical bonds.

13. How can the periodic table help you determine the number of valence electrons?

Atomic Number (total number of electrons) - (minus) the number of inner orbital electrons = THE VALENCE ELECTRONS

TO BOND OR NOT TO BOND

the number of valence electrons

14. What determines whether an atom will form bonds?
- **a.** the number of electrons
- **b.** the number of valence electrons
- **c.** the number of protons
- **d.** the number of neutrons

Group 18 the noble gases

15. Which group on the periodic table contains elements that do not normally form chemical bonds?
- **a.** Group 2
- **b.** Group 6
- **c.** Group 10
- **d.** Group 18

16. The outermost energy level of most atoms is considered full if the level contains eight = 8 = octet electrons.

17. Helium atoms need only 2 valence electrons to have a filled outermost energy level.