

# Directed Reading A

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## Section: Ionic Bonds

### FORMING IONIC BONDS

1. A chemical bond that forms when electrons are transferred from one atom to another is a(n) \_\_\_\_\_
2. Charged particles that form when atoms gain or lose electrons are \_\_\_\_\_
3. A transfer of electrons between atoms changes the number of electrons in an atom, but the number of \_\_\_\_\_ stays the same.
4. Why is an atom neutral?

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5. Why are ions charged particles and thus no longer neutral?

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### FORMING POSITIVE IONS

- \_\_\_\_\_ 6. When atoms lose electrons through an ionic bond, they become
  - a. positively charged.
  - b. neutral.
  - c. negatively charged.
  - d. uncharged.
7. Most metals have few \_\_\_\_\_ and form positive ions.
8. If a sodium atom loses its only valence electron to another atom, the sodium atom becomes a sodium \_\_\_\_\_
9. A sodium ion has a charge of \_\_\_\_\_
10. The chemical symbol for a sodium ion is \_\_\_\_\_
11. When electrons pull away from atoms, \_\_\_\_\_ is needed.

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12. Where does the energy needed to take electrons from metals come from?

\_\_\_\_\_

**FORMING NEGATIVE IONS**

\_\_\_\_\_ 13. Some atoms gain electrons during chemical changes and have a

- positive charge.
- negative charge.
- neutral charge.
- chemical charge.

\_\_\_\_\_ 14. The symbol for oxide is  $O^{2-}$ . How many electrons did the oxygen atom gain?

- 0
- 1
- 2
- 3

\_\_\_\_\_ 15. What ending is used for the names of negative ions?

- ion*
- ade*
- ide*
- ite*

16. Atoms of Group \_\_\_\_\_ elements give off the most energy when they gain an electron.

17. When is energy given off by most nonmetals?

\_\_\_\_\_

\_\_\_\_\_

18. When does an ionic bond form between a metal and a nonmetal?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**IONIC COMPOUNDS**

\_\_\_\_\_ 19. When ions bond, they form a repeating three-dimensional patterned called a(n)

- compound.
- crystal lattice.
- chemical bond.
- ionic bond.

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Directed Reading A** *continued*

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20. Why does the compound formed by an ionic bond have a neutral charge when the ions that bond are charged?

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21. List three properties of ionic compounds within a crystal lattice.

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