

Atoms and Bonding ▪ *Guided Reading and Study***Ionic Bonds**

This section explains how an atom becomes electrically charged. It also describes the characteristic properties of bonds formed by the attraction of electrically charged particles.

Use Target Reading Skills

Before you read, preview Figure 9. Then write two questions that you have about the diagram in the graphic organizer below. As you read, answer your questions.

Formation of an Ionic Bond

Q. What is an ionic bond?
A.
Q.
A.

Ions and Ionic Bonds

1. An atom or group of atoms that has an electric charge is called a(n) _____.

2. What happens to an atom when it loses an electron?

3. What happens to an atom when it gains an electron?

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4. Ions that are made of more than one atom are called _____.
5. Use the table in the textbook to complete the table below.

Ions and Their Charges		
Name	Charge	Symbol or Formula
Sodium	a.	b.
Magnesium	c.	d.
Chloride	e.	f.
Sulfate	g.	h.

6. What is the charge on a carbonate ion (CO_3^{2-})? Compared to the number of protons, how many electrons does the carbonate ion have? (*Hint: You can answer this question without having to count all the particles.*)

7. What kinds of ions do a sodium atom and a chlorine atom become when a valence electron is transferred from one to the other?

8. What is an ionic bond?

9. Give an example from the table above of two ions that can form an ionic bond.

Atoms and Bonding ▪ *Guided Reading and Study***Chemical Formulas and Names**

10. A(n) _____ is a combination of symbols that shows the ratio of elements in a compound.
11. Is the following sentence true or false? When ionic compounds form, the ions come together in a way that balances out the charges on the ions.

12. In the chemical formula for magnesium chloride (MgCl_2), what is the number "2" called, and what does it tell you?

13. Is the following sentence true or false? For an ionic compound, the name of the negative ion comes first. _____
14. When does the end of a name of a negative ion end in *-ide*?

Properties of Ionic Compounds

15. What are three characteristic properties of ionic compounds?
a. _____
b. _____
c. _____
16. An orderly, three-dimensional arrangement formed by ions is called a(n) _____.
17. In an ionic compound, which ions are attracted to each other?

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Ionic Bonds *(continued)*

18. Why do ionic compounds have high melting points?

19. At room temperature, ionic bonds are strong enough to cause all ionic compounds to be _____.

20. Why do ionic compounds conduct electricity well when they are dissolved in water?
