

**Elements and the Periodic Table** ▪ *Reading/Notetaking Guide***Introduction to Atoms** (pp. 124–130)

*This section describes the development of atomic theory and the structure of atoms.*

**Use Target Reading Skills**

*Before you read, preview the diagram of a carbon atom in Figure 7 in your textbook. Then, complete the graphic organizer by writing two questions about the diagram. As you read, answer your questions.*

**Modern Model of an Atom**

<b>Q.</b> What particles are in the center of an atom?
<b>A.</b>
<b>Q.</b>
<b>A.</b>

**Development of Atomic Theory** (pp. 125–127)

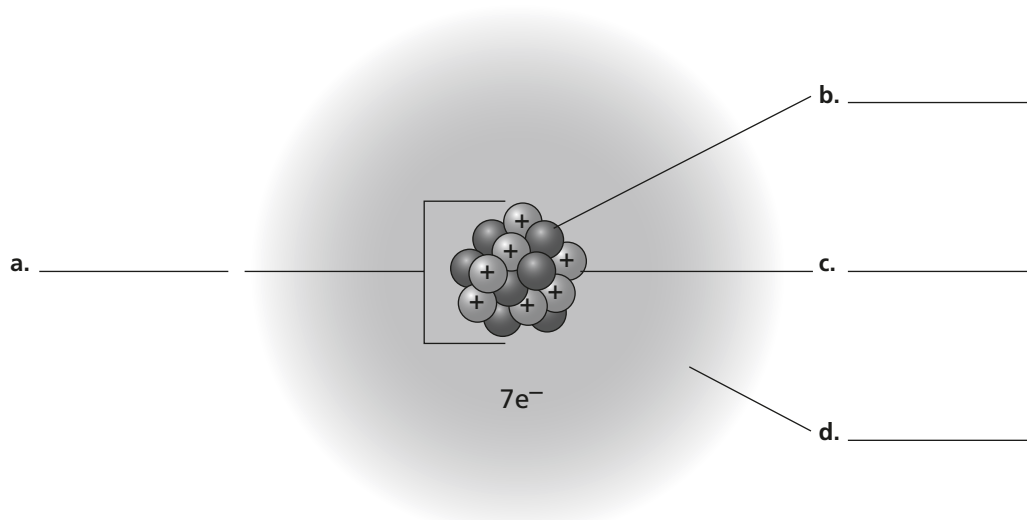
1. Is the following sentence true or false? Atoms are the smallest particles of matter. \_\_\_\_\_
2. Circle the letter of each sentence that is part of John Dalton's atomic theory.
  - a. All elements are composed of atoms.
  - b. No two atoms of the same element are exactly alike.
  - c. An atom of one element cannot be changed into an atom of a different element.
  - d. Atoms cannot be created or destroyed in any chemical changes.
3. Is the following sentence true or false? With only a few changes, Dalton's atomic theory is still accepted today. \_\_\_\_\_
4. Who described the atom as negative charges scattered through a ball of positive charges? \_\_\_\_\_
5. What experiment convinced Ernest Rutherford that the atom has a small, positively charged nucleus? \_\_\_\_\_

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6. The term Rutherford gave to the positively charged particles in the nucleus of an atom was \_\_\_\_\_.
7. In the atomic model proposed by \_\_\_\_\_, electrons move in specific orbits, similar to how planets orbit the sun.
8. What particle did Chadwick discover in 1932 that was hard to detect because it had no electrical charge? \_\_\_\_\_
9. Is the following sentence true or false? Since the 1930s, the model of the atom has changed a great deal.  
\_\_\_\_\_
10. Circle the letter of each sentence that correctly describes atoms.
  - a. Most of the mass of an atom is due to its protons and neutrons.
  - b. Atoms have no overall electrical charge.
  - c. Atoms of different elements have the same number of protons.
  - d. Most of the volume of an atom consists of its nucleus.

**The Modern Atomic Model** (pp. 128–130)

11. Label the parts of the atom in the diagram below.



12. Tell why an atom is neutral.

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**Introduction to Atoms** *(continued)*

13. Which two particles in an atom have about the same mass?

\_\_\_\_\_

14. How does the mass of an electron compare to the mass of a proton?

\_\_\_\_\_

\_\_\_\_\_

15. An element can be identified by the number of \_\_\_\_\_  
in the nucleus of its atoms.

16. What is the atomic number of an element?

\_\_\_\_\_

\_\_\_\_\_

17. What are isotopes?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

18. In the space below, draw two isotopes of carbon and give the mass  
number for each.