

CHAPTER

4

STUDY GUIDE FOR CONTENT MASTERY

The Structure of the Atom

Section 4.1 Early Theories of Matter

In your textbook, read about the philosophers, John Dalton, and defining the atom.

For each statement below, write *true* or *false*.

- false 1. Ancient philosophers regularly performed controlled experiments.
- True 2. Philosophers formulated explanations about the nature of matter based on their own experiences.
- True 3. Both Democritus and Dalton suggested that matter is made up of atoms.
- True 4. Dalton's atomic theory stated that atoms separate, combine, or rearrange in chemical reactions.
- False 5. Dalton's atomic theory stated that matter is mostly empty space.
- false 6. Dalton was correct in thinking that atoms could not be divided into smaller particles.
- True 7. Dalton's atomic theory stated that atoms of different elements combine in simple whole-number ratios to form compounds.
- True 8. Dalton thought that all atoms of a specific element have the same mass.
- false 9. Democritus proposed that atoms are held together by chemical bonds, but no one believed him.
- True 10. Dalton's atomic theory was based on careful measurements and extensive research.
- false 11. There are no instruments powerful enough to magnify atoms so that they can be seen.
- True 12. The smallest particle of an element that retains the properties of that element is called an atom.