

# 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*.

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