

Elements and Atoms (pages 6–11)

The Building Blocks of Matter (pages 6–7)

Key Concept: Elements are often called the building blocks of matter because all matter is composed of one element or a combination of two or more elements.

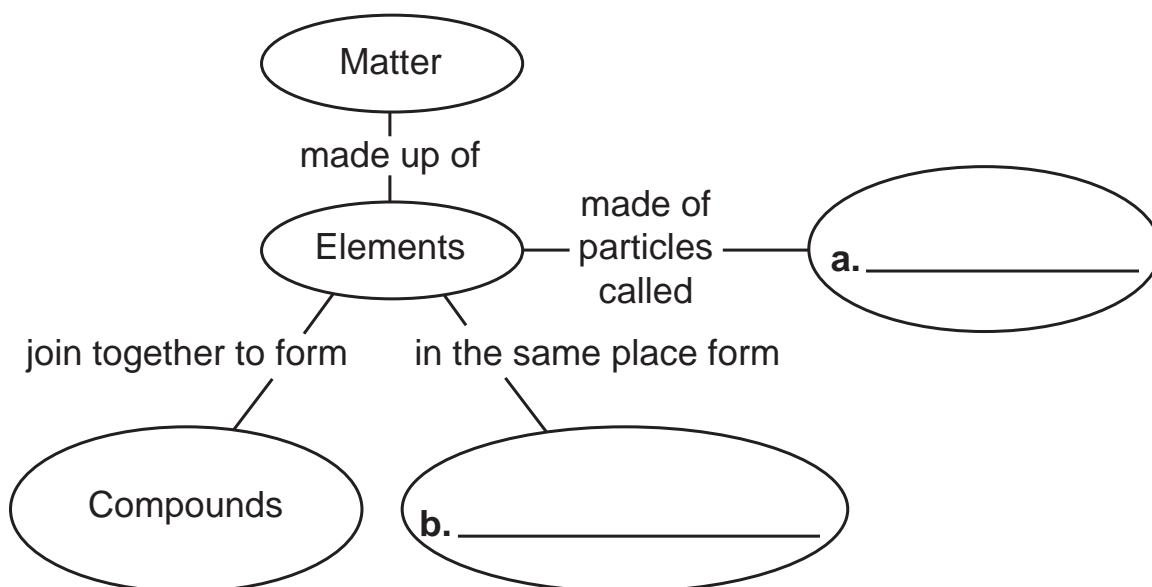
- **Matter** is anything that has mass and takes up space. Everything around you is matter. Buildings are matter. Air and water are matter, too.
- All matter is made up of elements. An **element** is a substance that cannot be broken down into any other substances. Aluminum, iron, and oxygen are elements.
- Elements are usually joined with other elements. A **compound** is two or more elements joined in a chemical reaction. Water and salt are two compounds.
- Elements can mix with other elements without joining in a chemical reaction. A **mixture** is two or more elements or compounds mixed together. Soil and orange juice are examples of mixtures.
- An **atom** is the smallest piece of an element.

Answer the following questions. Use your textbook and the ideas above.

1. Circle the letter of an example of a mixture.
 - a. oxygen
 - b. water
 - c. orange juice

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2. Fill in the blanks to complete the concept map about matter.



Atomic Theory and Models (pages 8–11)

Key Concept: Atomic theory grew as a series of models that developed from experimental evidence. As more evidence was collected, the theory and models were revised.

- The model of the atom has changed over time.
- In the modern atomic model, an atom has two parts—a nucleus surrounded by a cloud of electrons.
- The **nucleus** (NOO klee us) is the center of an atom. The nucleus is made of protons and neutrons.
- **Protons** are particles with a positive electric charge. **Neutrons** are particles with no electric charge. Protons and neutrons make up most of the mass of an atom.
- **Electrons** are particles with a negative electric charge. Electrons are found anywhere within the cloud around the nucleus.

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- Electrons have specific amounts of energy. Electrons with the lowest energy are in energy levels closest to the nucleus. An **energy level** is an area outside the nucleus where electrons with the same amount of energy are found.

Answer the following questions. Use your textbook and the ideas on page 5 and above.

3. Fill in the table below about the particles that make up an atom.

Particles of an Atom		
Particles	Electric Charge	Location in an Atom
Proton	positive	a. _____
Electron	b. _____	cloud around nucleus
c. _____	no charge	nucleus

4. The picture shows the modern atomic model. Draw an X to show the energy level of electrons with the lowest energy.

