Date

Introduction to Matter • Adapted Reading and Study

Describing Matter (pages 34-43)

Properties of Matter (pages 35–37)

Key Concept: Every form of matter has two kinds of properties—physical properties and chemical properties.

- **Matter** is anything that has mass and takes up space. All the "stuff" around you is matter. Your pencil is matter. Water is matter. Air is matter, too.
- A **physical property** is how matter looks, feels, smells, sounds, and tastes. One physical property of water is that it is a liquid at room temperature. Other physical properties are color, hardness, and being able to stick to magnets.
- A **chemical property** tells how matter can change into new kinds of matter. For example, being able to catch fire and burn is a chemical property of wood. Another chemical property is being able to rust.

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

- 1. Anything that has mass and takes up space is
 - a. matter.
 - b. a physical property.
 - c. a chemical property.

 Complete the table below. Decide if each property of matter is a physical property or a chemical property. Write *P* if it is a physical property. Write *C* if it is a chemical property.

Properties of Matter	
Property	Physical Property or Chemical Property?
Rusting	a.
Color	b.
Burning	С.
Hardness	d.

Elements (pages 38–39)

Key Concept: Elements are the simplest substances.

- An **element** is a kind of matter that cannot be broken down into any other kind of substance. Gold is an element. Iron and oxygen are elements, too.
- Every element has different physical properties. Every element also has different chemical properties.
- An **atom** is the smallest part of an element. Each element is made up of only one kind of atom. The atoms of gold are different from the atoms of iron.
- Most atoms can join with other atoms. Joining forms a **chemical bond**, which is a pulling force that holds atoms together.

Answer the following questions. Use your textbook and the ideas on page 20.

 Read each word in the box. In each sentence below, fill in one of the words.



- **a.** The smallest part of an element is a(an)
- **b.** A substance that cannot be broken down into any other kind of substance is called a(an)
- 4. A pulling force that holds atoms together is called a
 - a. substance.
 - **b.** chemical bond.
 - c. chemical property.

Compounds (page 40)

Key Concept: When elements are chemically combined, they form compounds having properties that are different from those of the uncombined elements.

- **Compounds** are made up of the atoms of two or more elements joined together. The joined elements are held together by chemical bonds.
- When elements join, their physical properties and chemical properties change. A compound has properties different from each element it is made of.

Answer the following questions. Use your textbook and the ideas on page 21.

5. The picture shows a model of a carbon atom and an oxygen atom. The picture also shows a compound formed when an atom of oxygen joins with an atom of carbon. Circle the letter of the compound.



- 6. Circle the letter of each sentence that is true about elements in compounds.
 - a. When elements join, their properties stay the same.
 - **b.** When elements join, their properties change.
 - c. When elements join, they have no properties.

Mixtures (pages 41–43)

Key Concept: Each substance in a mixture keeps its individual properties. Also, the parts of a mixture are not combined in a set ratio.

- A **mixture** is made up of two or more compounds or elements that are together in the same place.
- A mixture is different from a compound in two ways:
 - 1. Chemical bonds do not hold the parts of a mixture together.
 - 2. The properties of each part of a mixture do not change when the parts are mixed together. For example, when you mix sugar into water, you can still taste the sugar.

- A **solution** is one kind of mixture. In a solution, the parts are very evenly mixed together. A mixture of sugar and water is a solution.
- In other mixtures, you can see the different parts. For example, you can see the lettuce, tomatoes, and olives in a salad.
- A mixture is easy to separate into its different parts because the parts keep their properties. For example, you can pick the olives out of a salad.

Answer the following questions. Use your textbook and the ideas on page 22 and above.

7. Read each word in the box. In each sentence below, fill in one of the words.

mixture molecule solution

- **a.** A kind of mixture in which the different parts are very evenly mixed is called a
- **b.** Two or more compounds or elements together in the same place is called a
- Is the following sentence true or false? Each part of a mixture keeps its properties.