

**CHAPTER 2 Reading Guide / Review****SECTION 2.1 – PROPERTIES of MATTER** (pages 34-37)

*This section helps you identify the characteristics of matter and substances. It teaches you how to differentiate among the three states of matter. It also defines a physical property and lists examples of physical properties and physical changes.*

**Describing Matter** (pages 34-35)

- 1) What is matter? \_\_\_\_\_
- 2) The \_\_\_\_\_ of an object is the amount of matter the object contains.
- 3) What is an **extensive property**? \_\_\_\_\_
- 4) What is an **intensive property**? \_\_\_\_\_
- 5) Matter that has a uniform and definite composition is called a \_\_\_\_\_.
- 6) How many kinds of matter does a pure substance contain? \_\_\_\_\_
- 7) TRUE or FALSE: All samples of a substance have different physical properties. \_\_\_\_\_
- 8) A physical property is a quality or condition of a substance that can be \_\_\_\_\_ or \_\_\_\_\_ without changing the substance's composition.
- 9) Circle the term that is **NOT** a physical property.  
a) odor                      b) density                      c) boiling point                      d) corrosion
- 10) TRUE or FALSE: A chemist can help identify a substance by its physical properties. \_\_\_\_\_

**States of Matter** (pages 36-37)

- 11) Circle the term that is NOT a physical state of matter.  
A) water                      B) gas                      C) liquid                      D) solid
- 12) Match each arrangement of the particles in matter with a physical state.

**Physical State**

\_\_\_\_\_ gas  
\_\_\_\_\_ liquid  
\_\_\_\_\_ solid

**Arrangement**

a. packed tightly together  
b. close, but not rigidly packed  
c. spaced far apart

- 13) TRUE or FALSE: The words *gas* and *vapor* can be used interchangeably. \_\_\_\_\_
- 14) The term gas is limited to those substances that exist in the gaseous state at ordinary \_\_\_\_\_. \_\_\_\_\_
- 15) What is vapor? \_\_\_\_\_

**Physical Changes** (page 37)

- 16) A physical change alters a given material without changing its chemical \_\_\_\_\_. \_\_\_\_\_

17) What are some words that describe physical change?

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18) What do boiling, freezing, and melting have in common?

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## **SECTION 2.2 MIXTURES (pages 38-41)**

*This section explains how to categorize a sample of matter as a substance or a mixture. It also teaches you how to distinguish between homogeneous and heterogeneous samples of matter.*

### **Classifying Mixtures (pages 38-39)**

- 1) TRUE or FALSE: Most samples of matter are mixtures. \_\_\_\_\_
- 2) What is a mixture? \_\_\_\_\_
- 3) TRUE or FALSE: A heterogeneous mixture is one that has a completely uniform composition. \_\_\_\_\_
- 4) What is another name for a homogeneous mixture? \_\_\_\_\_
- 5) Circle the term that describes a part of a system with uniform composition and properties.  
A) solution      B) mixture      C) state      D) phase
- 6) How many phases exist in these types of mixtures?  
A) Homogeneous \_\_\_\_\_ B) Heterogeneous \_\_\_\_\_
- 7) Match each type of solution with an example of it.  
1) \_\_\_\_\_ solid-solid      A) sugar water  
2) \_\_\_\_\_ solid-liquid      B) carbon mixed with iron to form steel  
3) \_\_\_\_\_ gas-liquid      C) soda water  
4) \_\_\_\_\_ gas-gas      D) air

### **Separating Mixtures (pages 40-41)**

- 8) TRUE or FALSE: It is always easy to separate the components in mixtures. \_\_\_\_\_

## **SECTION 2.3 ELEMENTS AND COMPOUNDS (pages 42-47)**

*This section explains the difference between an element and a compound. It also helps you identify the chemical symbols of common elements, and name common elements, given their symbols.*

### **Distinguishing Elements and Compounds (pages 42-43)**

- 1) What are the two groups into which substances can be classified? \_\_\_\_\_ & \_\_\_\_\_
- 2) TRUE or FALSE: Elements can be separated easily into simpler substances. \_\_\_\_\_
- 3) Compounds are substances that can be separated into simpler substances only by \_\_\_\_\_ means.
- 4) TRUE or FALSE: The properties of compounds are different from those of their component elements.  
\_\_\_\_\_

### **Distinguishing Substances and Mixtures (page 44)**

5) TRUE or FALSE The elements that makeup a compound are always present in the same proportions.

\_\_\_\_\_

### **Symbols and Formulas (pages 45-47)**

6) What is used to represent each element? \_\_\_\_\_

7) What are chemical symbols used for? \_\_\_\_\_

8) The subscript numbers in chemical formulas represent the proportions of the various elements in the  
\_\_\_\_\_.

9) Use the periodic table to answer the following questions.

A) Pb is the symbol for what element? \_\_\_\_\_

B) What is the symbol for gold? \_\_\_\_\_

C) Stibium is the Latin name for which element? \_\_\_\_\_

### **SECTION 2.4 CHEMICAL REACTIONS (pages 48-50)**

*This section helps you differentiate between physical and chemical changes in matter. It also teaches you how to apply the law of conservation of mass.*

#### **Chemical Changes (page 48)**

1) What happens in a chemical reaction?

\_\_\_\_\_

\_\_\_\_\_

2) What is a chemical property? \_\_\_\_\_

3) TRUE or FALSE? Chemical properties are observed only when a substance undergoes a chemical change. \_\_\_\_\_

4) In chemical reactions, the starting substances are called \_\_\_\_\_ and the substances formed are called \_\_\_\_\_.

5) Circle the term that best completes the following sentence.

*A chemical change \_\_\_\_\_ results in a change in chemical composition of the substances involved.*

A) sometimes

B) rarely

C) always

D) never

#### **Recognizing Chemical Reactions (pages 48-49)**

6) What are some words that describe chemical change?

\_\_\_\_\_

7) Which representation of a chemical reaction is correct?

A) products      ➔      reactants

B) reactants      ➔      products

## **Conservation of Mass (page 50)**

- 8) During a chemical reaction, the mass of products is always equal to the mass of \_\_\_\_\_.
- 9) The law of conservation of mass states that in any physical change or chemical reaction, mass is neither \_\_\_\_\_ nor \_\_\_\_\_.
- 10) Explain how it is easier to demonstrate the law of conservation of mass with a flashbulb than with a burning match.
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## **REVIEW**

*Each clue describes a vocabulary term. Read the clues and write the letters of each term on the lines provided.*

1. Clue: part of a system having uniform composition and properties.

\_\_\_\_\_\*\_\_\_\_\_\*\_\_\_\_\_

2. Clue: one- or two-letter designation for an element. (2 words)

\*\_\_\_\_\_\*\_\_\_\_\_\*

3. Clue: anything that has mass and takes up space.

\_\_\_\_\_\*\_\_\_\_\_

4. Clue: simplest forms of matter that can exist under normal laboratory conditions.

\_\_\_\_\_\*\_\_\_\_\_

5. Clue: the amount of matter an object contains.

\_\_\_\_\_\*\_\_\_\_\_

6. Clue: matter that has a definite shape and volume.

\*\_\_\_\_\_\*

7. Clue: a physical blend of two or more substances.

\_\_\_\_\_\*\_\_\_\_\_

8. Clue: matter that takes both the shape and volume of its container.

\_\_\_\_\_\*\_\_\_\_\_

*Write the letters found above the \* on the lines below. Then unscramble them to find the term that describes matter that has a uniform and definite composition.*

## **Scrambled letters:**

\_\_\_\_\_\*\_\_\_\_\_

## **Solution:**

\_\_\_\_\_\*\_\_\_\_\_