

2-5 Review and Reinforcement

Mixtures

Use what you have learned in Section 2-5 to identify each of the following substances as pure substances, heterogeneous mixtures, or homogeneous mixtures. Write "pure," "heterogeneous," or "homogeneous" on the line.

- | | |
|-------|------------------|
| _____ | 1. alphabet soup |
| _____ | 2. salt |
| _____ | 3. concrete |
| _____ | 4. vegetable oil |
| _____ | 5. air |
| _____ | 6. paint |
| _____ | 7. sea water |
| _____ | 8. granite |
| _____ | 9. steel |
| _____ | 10. sugar |

Complete the following sentences by filling in the appropriate word from the list below. Each word can be used once, more than once, or not at all.

filtration
 crystallization
 chromatography
 electrolysis
 distillation

11. Heterogeneous mixtures are often separated by _____.
12. Separating sand from water can be done by _____.
13. The sugar in sugar water can be removed by _____.
14. The separation technique that takes advantage of different boiling points is called _____.
15. Removing chlorophyll pigment from leaves might be done by _____.
16. The best way to decompose water into oxygen and hydrogen is by _____.
17. Crude oil is broken down by heat, vaporized, and allowed to condense into various liquids such as gasoline. This process is called _____.

2-5 Review and Reinforcement (continued)

Answer each of the following questions in the space provided.

18. How could you separate a mixture of iron filings and aluminum filings? What property of these metals would allow such a separation?

19. Could distillation be used to separate air into oxygen, nitrogen, carbon dioxide, argon, and so forth? Explain.

20. Why is every solution a mixture, but not every mixture is a solution?

21. Explain, or use examples to show, how a mixture may appear homogeneous but actually be heterogeneous.

Classification of Matter

Section Review 1.3

DIRECTIONS: Write on the line at the right of each statement the letter preceding the word or expression that best completes the statement.

1. All of the following are mixtures with the exception of (a) brass; (b) air; (c) baking soda; (d) concrete. _____ 1
2. Water composed of 11.2% hydrogen and 88.8% oxygen by mass is (a) a mixture; (b) a solution; (c) heterogeneous; (d) a pure substance. _____ 2
3. Pure substances, solutions and elements (a) all contain phases; (b) are mixtures; (c) are heterogeneous; (d) are homogeneous. _____ 3
4. Pure substances can be (a) solutions; (b) heterogeneous; (c) elements; (d) mixtures. _____ 4
5. A compound composed of three elements is (a) salt; (b) water; (c) sugar; (d) carbon dioxide. _____ 5

DIRECTIONS: Complete the following table by checking either homogeneous or heterogeneous, depending on the type of substance.

	Substance	Homogeneous	Heterogeneous	
6.	iron ore			6
7.	quartz			7
8.	granite			8
9.	pancake syrup			9
10.	vegetable soup			10
11.	salt			11
12.	water			12
13.	nitrogen			13

DIRECTIONS: Write the answers to the following on the lines provided.

14. State the law of definite composition. _____

 _____ 14
15. Identify and give examples of the two primary types of homogeneous matter. _____

 _____ 15

CHAPTER 4 REVIEW ACTIVITY

Text Reference: Section 4-7

Classification of Matter

Choose words from the list to fill in the blanks in the paragraphs.

Word List

chemical property	intensive property
compound	mixture
element	physical property
extensive property	property
heterogeneous matter	substance
homogeneous matter	

Matter that has uniform characteristics throughout is called (1).
 Matter that has parts with different characteristics is called (2). A
 characteristic by which a variety of matter is recognized is called a(n)
(3). A characteristic that depends upon the amount of matter in
 the sample is called a(n) (4). A characteristic that does not depend
 upon the amount of matter is called a(n) (5). A characteristic that
 can be observed without producing new kinds of matter is called a(n)
(6). A characteristic that depends on how a kind of matter changes
 during interactions with other kinds of matter is called a(n) (7).

Matter can also be classified according to the basic types of matter
 it contains. A simple substance that cannot be broken down into other
 substances by chemical means is called a(n) (8). A chemical combi-
 nation of simple substances is called a(n) (9). A physical combi-
 nation of different substances that retain their individual properties
 is called a(n) (10). Either an element or a compound may be referred
 to as a(n) (11).

**Classify each of the following as an *element, compound, hetero-
 geneous mixture, or homogeneous mixture.***

12. Water

13. Carbon

14. Air

15. Table salt

16. Sugar dissolved in water

17. Homogenized milk

18. Granite

19. Oxygen

20. Sand in water

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

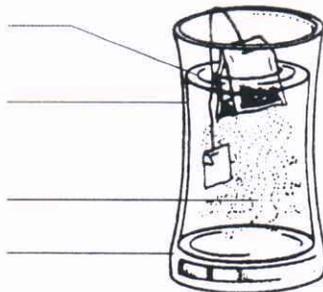
19. _____

20. _____

Chapter 3
CONCEPT REVIEW

1. Fill in the blanks on the illustration, using the letter of the correct term.

- a. air-water interface
- b. solid phase
- c. liquid phase
- d. solid-liquid interface



2. Define the following terms and list one example of each.

- a. heterogeneous mixture

- b. solution

- c. compound

- d. element

3. Classify the following materials as heterogeneous mixtures, solutions, compounds, or elements.

- | | |
|----------------------|-----------------------------------|
| a. concrete _____ | f. gravel _____ |
| b. sodium _____ | g. brass _____ |
| c. baking soda _____ | h. milk _____ |
| d. table salt _____ | i. apple _____ |
| e. aluminum _____ | j. noncarbonated soft drink _____ |

4. Define the following terms.

- a. chemical property _____

- b. physical property _____

5. Classify the following properties as chemical or physical.

- | | |
|------------------------------|-----------------------|
| a. heat conductivity _____ | d. length _____ |
| b. combustibility _____ | e. brittleness _____ |
| c. resistance to acids _____ | f. malleability _____ |

CHAPTER 4 REVIEW ACTIVITY

Text Reference: Section 4-7

Properties

Recall that *physical properties* can be observed without producing new substances. *Chemical properties* describe how a substance interacts (or fails to interact) with other substances to produce new substances. *Extensive properties* depend upon the amount of matter in the sample; *intensive properties* do not.

Classify each of properties listed below as *extensive physical, intensive physical, or chemical*.

- | | |
|---|-----------|
| 1. Color | 1. _____ |
| 2. Combustibility | 2. _____ |
| 3. Hardness | 3. _____ |
| 4. Density | 4. _____ |
| 5. Mass | 5. _____ |
| 6. Melting point | 6. _____ |
| 7. Ductility | 7. _____ |
| 8. Volume | 8. _____ |
| 9. Failure to react with other substances | 9. _____ |
| 10. Odor | 10. _____ |
| 11. Weight | 11. _____ |
| 12. Malleability | 12. _____ |
| 13. Tendency to corrode | 13. _____ |

Some of the measured properties of a given substance are listed below. Write the general name describing each property. Select the names from the properties listed for Exercises 1–13 above.

- | | |
|---|-----------|
| 14. 15 dm ³ | 14. _____ |
| 15. Can easily be hammered into sheets. | 15. _____ |
| 16. 2.8 g/cm ³ | 16. _____ |
| 17. Burns when heated in the presence of O ₂ . | 17. _____ |
| 18. Stinks when heated. | 18. _____ |
| 19. Can be scratched by a diamond. | 19. _____ |
| 20. 500°C | 20. _____ |
| 21. Can easily be drawn into a wire. | 21. _____ |

Name _____ Class _____ Date _____

Skillsheet 2-2

Physical and Chemical Changes

Indicate with an X in the blank whether the change described is a physical change, a chemical change, or both.

Description of Change	Physical	Chemical
1. Drops of water collect on the outside of a cold glass of water.	_____	_____
2. Air bubbles form in the cold water as it is warmed by the surroundings.	_____	_____
3. The metal in an automobile exposed to salt and water slowly crumbles into tiny pieces.	_____	_____
4. A mixture of cement, sand, and water hardens into concrete with the release of heat over a period of a few days.	_____	_____
5. An image develops on film exposed to light.	_____	_____
6. Dry ice slowly disappears without an apparent trace when left exposed to warm temperatures.	_____	_____
7. Gasoline changes into a gas and burns as it enters the cylinder of an automobile engine.	_____	_____
8. The volume of a balloon is reduced when the balloon is placed in cooler surroundings.	_____	_____
9. Food that is eaten is changed by the body and energy is released.	_____	_____
10. A sample of a liquid in a narrow tube expands as its temperature is increased.	_____	_____

Identify three clues that are often helpful in determining that a change is a chemical change.

11. _____

