

Name: \_\_\_\_\_

## Unit 2 Matter: General Chemistry Review

### ELEMENTS, COMPOUNDS, AND MIXTURES

1. **Matter** is anything that has a mass and takes up space. An **element** is the simplest form of matter which cannot be broken down any further. Elements are listed on Table S and the periodic table. Their symbols start with an uppercase letter.

a. Which of the following is not matter? \_\_\_\_\_

Magnesium

Calcium Carbonate

Salt water

Heat

b. Which of the above is an element? \_\_\_\_\_

2. **Compounds** are composed of two or more elements. They can only be decomposed chemically. Elements and compounds are also known as **substances**.

a. Which of the choices in number one was a compound? \_\_\_\_\_

b. How can compound be broken down? \_\_\_\_\_

c. Which of the choices in question one are substances? \_\_\_\_\_

3. **Mixtures** are physical combinations of two or more substances (elements and/or compounds). Mixtures can be **homogeneous** (completely mixed, cannot see the parts) or **heterogeneous** (unevenly mixed, can see the parts). Mixtures can be separated by physical means.

a. Label each as homogeneous or heterogeneous:

Sand: \_\_\_\_\_

Brass: \_\_\_\_\_

Milk: \_\_\_\_\_

Oil and water: \_\_\_\_\_

4. Compounds must be separated chemically but mixtures can be separated easily using physical methods.

a. Match each method with its name.

Distillation

Separated by differences in particle size

Filtration

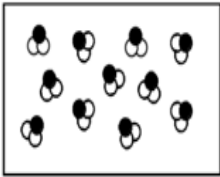
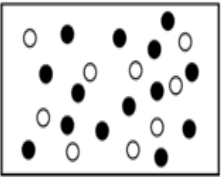
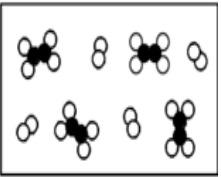
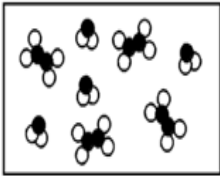
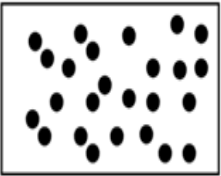
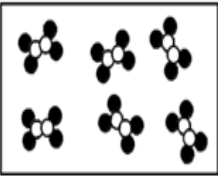
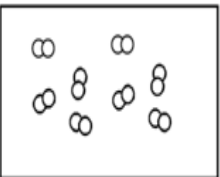
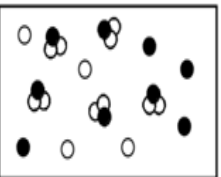
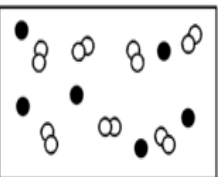
To pour off the top layer of an uneven mixture

Decant

Separated by differences in boiling point.

b. Which of the above processes only work if the mixture is heterogeneous? \_\_\_\_\_

c. Label the following as element (E), compound (C), or mixture (M).

		
1) _____	2) _____	3) _____
		
4) _____	5) _____	6) _____
		
7) _____	8) _____	9) _____

## SOLIDS, LIQUIDS, AND GASES

5. A **solid** has a definite shape and volume. Solids are arranged in a geometric pattern. **Liquids** have a definite volume but take the shape of the container they are in. **Gases** have an indefinite shape and volume; they take the shape and volume of the container. Gases are easily compressed.

a. Draw particle diagrams for a solid, liquid, and a gas using at least 5 particles:



b. Which has a definite shape?



c. Which has a definite volume?



6. **Vapors** are the gas phase of substances that are normally solid or liquid at room temperature.

a. Which can be a vapor?

Carbon dioxide \_\_\_\_\_

Water \_\_\_\_\_

Oxygen \_\_\_\_\_

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### CHANGES IN THE LAB

7. **Physical changes** are changes where the substance retains its properties. **Chemical changes** will make substances change into new substances and change properties.

a. Label the following as physical (P) or chemical (C) properties:

Texture \_\_\_\_\_

flammability \_\_\_\_\_

boiling point: \_\_\_\_\_

Odor \_\_\_\_\_

color \_\_\_\_\_

chemical composition: \_\_\_\_\_

b. Label the following as physical (P) or chemical (C) changes:

Corrosion: \_\_\_\_\_

melting: \_\_\_\_\_

mixing: \_\_\_\_\_

Freezing: \_\_\_\_\_

cutting: \_\_\_\_\_

decaying: \_\_\_\_\_

8. In chemical reactions **mass is conserved**.

a. Can you form or destroy matter? \_\_\_\_\_

b. Mass of reactants is \_\_\_\_\_ mass of products. (Greater than, Equal to, or less than?)