Name _____

Classifying Matter (p. 45 – 50)

I. What Is Matter?

1. **Define the term matter.**

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Matter – anything that has mass + takes up space

2. **What is the study of chemistry?**

- The study of matter + its changes

3. **What do chemists study?**

-Study matter (make-up, properties, changes, interactions)

4. **List the three categories for classifying matter.**

1. Element
2. Compound
3. Mixture

II. Elements

1. **Define the term element.**

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Element – substance that cannot be broken down into simpler substances

2. **An** atom **is the smallest unit of an element that keeps an element's chemical properties.**

3. **Each element is made up of one kind of atom.**

Circle One : (True) False

4. **How are elements represented on the periodic table of elements?**

- One or two-lettered symbol (C, Al)

5. **On the periodic table (p. 148 - 149), identify elements that are gases at room temperature.**

a. carbon
(b.) oxygen
c. mercury
(d.) nitrogen

Liquids @ room temperature
- Mercury - Bromine

(* Most elements are solids at room temp.
↓
20° C or 68° F)

6. **Define the term molecule.**

Molecule – smallest unit of a substance that behaves like the substance

7. **List four examples of elemental molecules.**

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1. Neon (uncombined) 2. H_2 3. O_2 4. P_4 (Phosphorus)

Name _____

III. Compounds

1. **Define the term compound.**

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Compound – substance made up of atoms of different elements

2. **List four examples of compounds.**

- H_2SO_4
- HCl

1. H_2O 2. CO_2 3. CH_4 (methane) 4. NaCl

3. **Elements combine in the same proportions to make a specific compound.**

Circle One : (True) False

4. **Explain how compounds have different properties than individual elements of compounds.**

- Hydrogen + Oxygen = Gases
- H_2O (water) = Liquid

5. **What does a chemical formula indicate?**

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- How many atoms of each element are in a substance

6. **How many of each element is in the compound glucose ($C_6H_{12}O_6$)?**

Carbon (C) = 6 Hydrogen (H) = 12 Oxygen (O) = 6

IV. Pure Substances & Mixtures

1. **Define the term pure substance.**

Pure Substance – matter that has a fixed composition + definite properties

2. **Why is a mixture not considered a pure substance?**

- A mixture can be physically separated into its parts

3. **List an example of a pure substance and mixture.**

1. Pure Substance = Water 2. Mixture = Salad

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4. **Match the type of mixture with the correct definition.**

1. B - Heterogeneous A. Contains two or more substances blended evenly together
2. A - Homogeneous B. Different materials can be distinguished easily

5. **Give two examples of each type of mixture.**

Sand, Granite, Clothes Piles

Flat Soft Drink, Stainless Steel, Pool Water, Plastic

Heterogeneous Mixture	Homogeneous Mixture
1. Salad	1. Vinegar (water + acetic acid)
2. Shirt Fibers	2. Gasoline

6. **Gases and liquids can combine into a mixture.**

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Circle One : (True) False

Carbonated Drinks → produce foam (gas-liquid mix)