

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

Block: \_\_\_\_\_

Date: \_\_\_\_\_

Chemistry 11

## Classifying Matter

Assignment

1. Explain the differences between a “MIXTURE” and a “PURE SUBSTANCE”. Give an example of each.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Describe the difference between a homogeneous and heterogeneous mixture. Give an example of each.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Assume you have 10g of pure gold. Should you refer to the gold as an atom or an element? Why?

\_\_\_\_\_  
\_\_\_\_\_

4. Which of an **E**lement (E), **C**ompound (C), **S**olution (S), or **M**echanical **M**ixture (MM) are possible classifications for the following? (There may be more than one answer for each example).

- A clear liquid which can be boiled away to leave a white solid. \_\_\_\_\_
- A collection of solid particles, some of which are white, and some of which are red. \_\_\_\_\_
- A solid which melts at  $170^{\circ}\text{C}$ . \_\_\_\_\_
- A gas. \_\_\_\_\_
- A liquid. \_\_\_\_\_
- A liquid which boils away completely at  $136^{\circ}\text{C}$ . When the liquid is strongly heated in a closed container, a yellow gas and a black solid are produced. \_\_\_\_\_

5. Which substance is the solute in each of the following?

- Water containing 5% acetic acid (this mixture is commonly called “vinegar”).

\_\_\_\_\_

- Tincture of iodine (a small amount of solid iodine mixed with alcohol).

\_\_\_\_\_

- A mixture containing 60% alcohol and 40% chloroform.

\_\_\_\_\_

- A solution containing 900g of silver nitrate in 100g of water.

\_\_\_\_\_

6. Classify each of the following items according to the flowchart classification system. List the categories each fits into as you proceed down the flowchart.

a. Ammonia gas ( $\text{NH}_3$ )

**Pure Substance/Compound/Covalent**

b. Vinegar (acetic acid dissolved in water)

\_\_\_\_\_

c. Nitrogen gas ( $\text{N}_2$ )

\_\_\_\_\_

d. Silver (Ag)

\_\_\_\_\_

e. Smog

\_\_\_\_\_

f. Ice

\_\_\_\_\_

g. Sugar ( $\text{C}_6\text{H}_{12}\text{O}_6$ )

\_\_\_\_\_

h. Neon gas (Ne)

\_\_\_\_\_

i. Sand and water

\_\_\_\_\_

j. Alcohol dissolved in water

\_\_\_\_\_

k. a glass of freshly squeezed orange  
juice with pulp

\_\_\_\_\_

l. table salt ( $\text{NaCl}$ ) dissolved in water

\_\_\_\_\_

m. a glass of milk

\_\_\_\_\_

n. Arsenic (As)

\_\_\_\_\_

o. Nitrogen dioxide ( $\text{NO}_2$ )

\_\_\_\_\_

p. Potassium chloride (KCl)

\_\_\_\_\_

q. Ham and pineapple pizza

\_\_\_\_\_

r. Soda pop

\_\_\_\_\_

s. Baking soda ( $\text{NaHCO}_3$ )

\_\_\_\_\_

t. A pencil cased filled with pens, pencils etc.

\_\_\_\_\_

7. In an aqueous solution of calcium chloride, what is the solvent and what is the solute?

Solvent: \_\_\_\_\_

Solute: \_\_\_\_\_