

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

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

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

Chemistry 11

## Classifying Matter

Assignment

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

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

Homogeneous: looks the same throughout (one phase)

Ex. Salt water

Heterogeneous: different parts if the mixture can be seen (more than one phase)

Ex. Trail mix

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

Element, an atom is only a single particle of the element. In 10g of a sample there will be LOTS of atoms.

4. Which of an Element (E), Compound (C), Solution (S), or Mechanical Mixture (MM) are possible classifications for the following? (There may be more than one answer for each example).

- a. A clear liquid which can be boiled away to leave a white solid. S
- b. A collection of solid particles, some of which are white, and some of which are red. MM
- c. A solid which melts at 170°C. E or C
- d. A gas. E or C or S
- e. A liquid. E or C or S
- f. A liquid which boils away completely at 136°C. When the liquid is strongly heated in a closed container, a yellow gas and a black solid are produced. C

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

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

acetic acid

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

iodine

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

chloroform

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

silver nitrate

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 ( $\text{NH}_3$ )	<b>Pure Substance/Compound/Covalent</b>
b. Vinegar (acetic acid dissolved in water)	mixture/solution
c. Nitrogen gas ( $\text{N}_2$ )	pure substance/element(diatomic molecule)
d. Silver (Ag)	pure substance/element/metal
e. Smog	mixture/suspension
f. Ice	pure substance/compound/covalent
g. Sugar ( $\text{C}_6\text{H}_{12}\text{O}_6$ )	pure substance/compound/covalent
h. Neon gas (Ne)	pure substance/element/non-metal
i. Sand and water	mixture/suspension
j. Alcohol dissolved in water	mixture/solution
k. a glass of freshly squeezed orange juice with pulp	mixture/suspension
l. table salt ( $\text{NaCl}$ ) dissolved in water	mixture/solution
m. a glass of milk	mixture
n. Arsenic (As)	pure substance/element/metal
o. Nitrogen dioxide ( $\text{NO}_2$ )	pure substance/compound/covalent
p. Potassium chloride (KCl)	pure substance/compound/ionic
q. Ham and pineapple pizza	mixture/mechanical mixture
r. Soda pop	mixture/solution
s. Baking soda ( $\text{NaHCO}_3$ )	pure substance/compound/ionic
t. A pencil cased filled with pens, pencils etc.	mixture/mechanical mixture

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

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

Solute: \_\_\_\_\_ calcium chloride \_\_\_\_\_