Name _____ **Date** _____ **Period** _____

Elements, Compounds & Mixtures Worksheet

Elements:

- A pure substance containing only one kind of _____.
- An element is always uniform all the way through (homogeneous).
- An element _____ be separated into simpler materials (except during nuclear reactions).
- Over 100 existing elements are listed and classified on the _____.

Compounds:

- A pure substance containing two or more kinds of _____.
- The atoms are _____ combined in some way. Often times (but not always) they come together to form groups of atoms called molecules.
- A compound is always homogeneous (uniform).
- Compounds _____ be separated by physical means. Separating a compound requires a chemical reaction.
- The properties of a compound are usually different than the properties of the elements it contains.

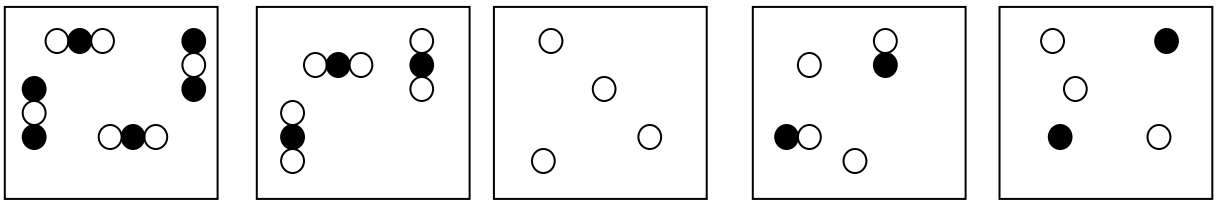
Mixtures:

- Two or more _____ or _____ NOT chemically combined.
- No reaction between substances.
- Mixtures can be uniform (called _____) and are known as solutions.
- Mixtures can also be non-uniform (called _____).
- Mixtures can be separated into their components by chemical or physical means.
- The properties of a mixture are similar to the properties of its components.

Part 2: Classify each of the following as elements (E), compounds (C) or Mixtures (M).

____Diamond(C)	____Sugar ($C_6H_{12}O_6$)	____Milk
____Iron (Fe)	____Uranium (U)	____A dog
____Air	____Gasoline	____Krypton (K)
____Alcohol (CH_3OH)	____Salt (NaCl)	____Water (H_2O)
____Wood	____Pizza	____Gold (Au)

Part 3: Match each diagram with its correct description. Diagrams will be used once.



A **B** **C** **D** **E**

___1. Pure Element – only one type of atom present.

___2. Mixture of two elements – two types of uncombined atoms present.

___3. Pure compound – only one type of compound present.

___4. Mixture of two compounds – two types of compounds present.

___5. Mixture of a compound and an element.

Part 4: Read each description and determine whether it is a pure substance or mixture. Then further classify the matter (element, compound, homogeneous mixture, heterogeneous mixture)

Description	**Pure Substance or Mixture?**	**Classification?**
1. Chocolate syrup is added to milk and stirred	Mixture	Homogenous mixture (solution)
2. Copper metal (used to make wires)		
3. Sand is added to water		
4. Distilled water		
5. Tap water		
6. Helium gas (used to inflate a balloon)		
7. Table sugar		
8. Table sugar added to a cup of coffee and stirred		
9. The air we breathe		

Chemistry: ***Classifying Matter***

Classify each of the materials below. In the center column, state whether the material is a **pure substance** or a **mixture**. If the material is a pure substance, further classify it as either an **element** or **compound** in the right column. Similarly, if the material is a mixture, further classify it as **homogeneous** or **heterogeneous** in the right column. Write the entire word in each space to earn full credit.

Material	**Pure Substance** ***or Mixture*** ⟶	***Element, Compound, Homogeneous, Heterogeneous***
concrete		
sugar + pure water ($C_{12}H_{22}O_{11}$ + H_2O)		
iron filings (Fe)		
limestone ($CaCO_3$)		
orange juice (w/pulp)		
Pacific Ocean		
air inside a balloon		
aluminum (Al)		
magnesium (Mg)		
acetylene (C_2H_2)		
tap water in a glass		
soil		
pure water (H_2O)		
chromium (Cr)		
Chex mix		
salt + pure water (NaCl + H_2O)		
benzene (C_6H_6)		
muddy water		
brass (Cu mixed with Zn)		
baking soda ($NaHCO_3$)		