Name _____

ILS

Elements, Compounds & Mixtures Worksheet

Part 1: Read the following information on elements, compounds and mixtures. Fill in the blanks where necessary.

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). Write the letter X if it is none of these.

___Diamond (C)	___Sugar ($C_6H_{12}O_6$)	___Milk	___Iron (Fe)
___Air	___Sulfuric Acid (H_2SO_4)	___Gasoline	___Electricity
___Krypton (K)	___Bismuth (Bi)	___Uranium (U)	___Popcorn
___Water (H_2O)	___Alcohol (CH_3OH)	___Pail of Garbage	___A dog
___Ammonia (NH_3)	___Salt (NaCl)	___Energy	___Gold (Au)
___Wood	___Bronze	___Ink	___Pizza
___Dry Ice (CO_2)	___Baking Soda ($NaHCO_3$)	___Titanium (Ti)	___Concrete

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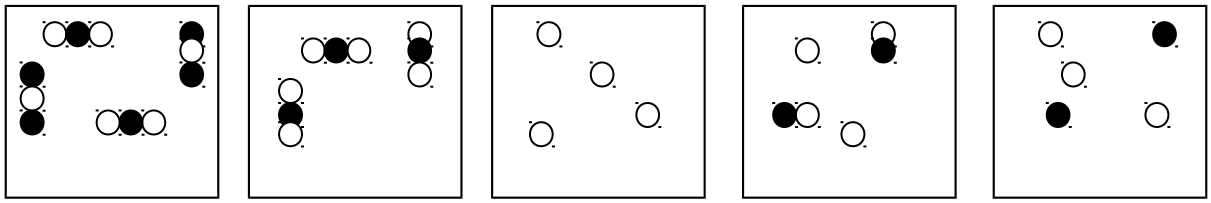
Part 3: Match each diagram with its correct description. Diagrams will be used once.



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: Column A lists a substance. In Column B, list whether the substance is an element (E), a compound (C), a Heterogeneous Mixture (HM), or a Solution (S). (Remember a solution is a homogeneous mixture.) In Column C, list TWO physical properties of the substance.

Column A	Column B	Column C
1. Summer Sausage		
2. Steam		
3. Salt Water		
4. Pencil lead (Pb)		
5. Dirt		
6. Pepsi		
7. Silver (Ag)		
8. Toothpaste (Na_2HPO_4)		
9. A burrito		
10. Italian Dressing		
11. Chicken Soup		
12. Lemonade		

Elements, Compounds & Mixtures Worksheet

Name _____

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Part 1: Read the following information on elements, compounds and mixtures. Fill in the blanks where necessary.

Elements:

- A pure substance containing only one kind of __**atom**____.
- An element is always uniform all the way through (homogeneous).
- An element __**cannot**___ be separated into simpler materials (except during nuclear reactions).
- Over 100 existing elements are listed and classified on the _**Periodic Table**_.

Compounds:

- A pure substance containing two or more kinds of __**atoms**__.
- The atoms are ___**chemically**___ 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 ___**cannot**___ 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.

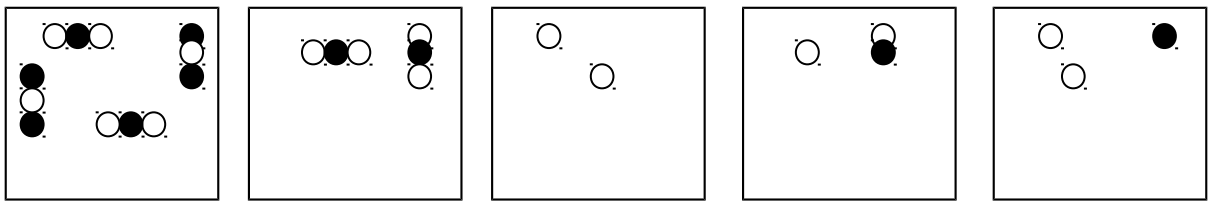
Mixtures:

- Two or more __**elements**___ or ____**compounds**__ NOT chemically combined.
- No reaction between substances.
- Mixtures can be uniform (called __**homogeneous**___) and are known as solutions.
- Mixtures can also be non-uniform (called ____**heterogeneous**____).
- 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). Write the letter X if it is none of these.

_**E**_Diamond (C)	_**C**_Sugar ($C_6H_{12}O_6$)	_**M**_Milk	_**E**_Iron (Fe)
_**M**_Air	_**C**_Sulfuric Acid (H_2SO_4)	_**M**_Gasoline	_**X**_Electricity
_**E**_Krypton (K)	_**E**_Bismuth (Bi)	_**E**_Uranium (U)	_**M**_Popcorn
_**C**_Water (H_2O)	_**C**_Alcohol (CH_3OH)	_**M**_Pail of Garbage	_**M**_A dog
_**C**_Ammonia (NH_3)	_**C**_Salt (NaCl)	_**X**_Energy	_**E**_Gold (Au)
_**M**_Wood	_**M**_Bronze	_**M**_Ink	_**M**_Pizza
_**C**_Dry Ice (CO_2)	_**C**_Baking Soda ($NaHCO_3$)	_**E**_Titanium (Ti)	_**M**_Concrete

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



Name _____

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

_**C**_1. Pure Element – only one type of atom present.

_**E**_2. Mixture of two elements – two types of uncombined atoms present.

_**B**_3. Pure compound – only one type of compound present.

_**A**_4. Mixture of two compounds – two types of compounds present.

_**D**_5. Mixture of a compound and an element.

Part 4: Column A lists a substance. In Column B, list whether the substance is an element (E), a compound (C), a Heterogeneous Mixture (HM), or a Solution (S). (Remember a solution is a homogeneous mixture.) In Column C, list TWO physical properties of the substance.

Column A	Column B	Column C
1. Summer Sausage	**HM**	**Chunky, Brown**
2. Steam	**C**	**Gas, Hot**
3. Salt Water	**S**	**Liquid, Clear**
4. Pencil lead (Pb)	**E**	**Grey, Solid**
5. Dirt	**HM**	**Brown, Solid**
6. Pepsi	**HM**	**Brown, Liquid**
7. Silver (Ag)	**E**	**Silver, Solid**
8. Toothpaste (Na_2HPO_4)	**C**	**White, Thick**
9. A burrito	**HM**	**Multi-colored, Solid**
10. Italian Dressing	**HM**	**Liquid, Greasy**
11. Chicken Soup	**HM**	**Liquid/Solid, Brown**
12. Lemonade	**S**	**Yellow, Liquid**