

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:

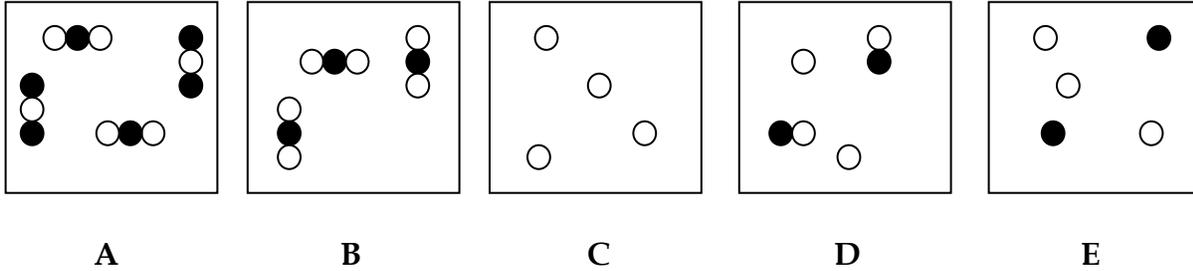
- Two or more _____ or _____ NOT chemically combined.
- No reaction between substances.
- Mixtures can be uniform (called _____) and are known as solutions.
- Mixtures can also be non-uniform (called _____).
- Mixtures can be separated into their components by chemical or physical means.
- The properties 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 ₆ H ₁₂ O ₆)	___Milk	___Iron (Fe)
___Air	___Sulfuric Acid (H ₂ SO ₄)	___Gasoline	___Electricity
___Krypton (K)	___Bismuth (Bi)	___Uranium (U)	___Popcorn
___Water (H ₂ O)	___Alcohol (CH ₃ OH)	___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.



- ___ 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

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.

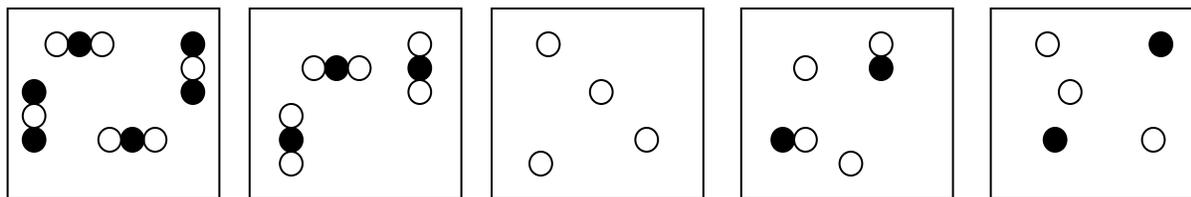
Mixtures:

- 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.

<u>E</u> Diamond (C)	<u>C</u> Sugar (C ₆ H ₁₂ O ₆)	<u>M</u> Milk	<u>E</u> Iron (Fe)
<u>M</u> Air	<u>C</u> Sulfuric Acid (H ₂ SO ₄)	<u>M</u> Gasoline	<u>X</u> Electricity
<u>E</u> Krypton (K)	<u>E</u> Bismuth (Bi)	<u>E</u> Uranium (U)	<u>M</u> Popcorn
<u>C</u> Water (H ₂ O)	<u>C</u> Alcohol (CH ₃ OH)	<u>M</u> Pail of Garbage	<u>M</u> A dog
<u>C</u> Ammonia (NH ₃)	<u>C</u> Salt (NaCl)	<u>X</u> Energy	<u>E</u> Gold (Au)
<u>M</u> Wood	<u>M</u> Bronze	<u>M</u> Ink	<u>M</u> Pizza
<u>C</u> Dry Ice (CO ₂)	<u>C</u> Baking Soda (NaHCO ₃)	<u>E</u> Titanium (Ti)	<u>M</u> Concrete

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Part 3: Match each diagram with its correct description. Diagrams will be used once.**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 ₂ HPO 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