

Elements, Compounds & Mixtures Notes & Practice

Part 1: Fill in the following information on elements, compounds and mixtures as we go through the book and PowerPoint.

Elements:

- A pure substance containing only one kind of atom.
- 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 elements.
- The atoms are chemically combined in some way. Often times (but not always) they come together to form groups of atoms called molecules.
- 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:

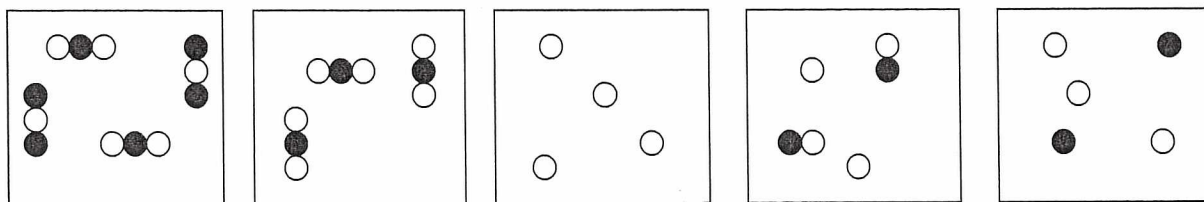
- Two or more elements or compounds NOT chemically combined.
- No reaction between substances.
- Mixtures can be separated into their components by chemical or physical means.
- The properties of a mixture are similar to the properties of its components.
- Mixtures can be non-uniform (called heterogeneous).
- Mixtures can also be uniform (called homogeneous) and are known as solutions.
 - The solute is the part of the solution that is being dissolved.
 - The solvent is the part of the solution that is doing the dissolving.
 - Examples of solutions:
 - Solid in a Solid - alloy - mixture of metals
 - Solid in a Liquid - sea water
 - Liquid in a Liquid - chocolate milk
 - Gas in a Liquid - soda
 - Gas in a Gas - air

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) | ___Bronze | ___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) |

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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. Steam		
2. Salt Water		
3. Carbon (C)		
4. Dirt		
5. Pepsi		
6. Silver (Ag)		
7. Toothpaste (Na_2HPO_4)		
8. A burrito		
9. Italian Dressing		
10. Chicken Soup		
11. Lemonade		