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 substance containing two or more different kinds of atoms is a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The atoms are chemically combined in some way.
* Any two atoms combined together form a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* 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 almost always 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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_).
* 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 (C6H12O6) \_\_\_Milk \_\_\_Iron (Fe)

\_\_\_Air \_\_\_Sulfuric Acid (H2SO4) \_\_\_Gasoline \_\_\_Electricity

\_\_\_Krypton (K) \_\_\_Bismuth (Bi) \_\_\_Uranium (U) \_\_\_Popcorn

\_\_\_Water (H2O) \_\_\_Alcohol (CH3OH) \_\_\_Pail of Garbage \_\_\_A dog

\_\_\_Ammonia (NH3) \_\_\_Salt (NaCl) \_\_\_Energy \_\_\_Gold (Au)

\_\_\_Wood \_\_\_Bronze \_\_\_Ink \_\_\_Pizza

\_\_\_Dry Ice (CO2) \_\_\_Baking Soda (NaHCO3) \_\_\_Titanium (Ti) \_\_\_Concrete

**Match each diagram with its correct description. Diagrams will be used once.**

**A B C D E**

\_\_\_1. Element – only one type of atom present. **IS THIS PURE: Y or N**

\_\_\_2. Mixture of two elements – two types of uncombined atoms present. **IS THIS PURE: Y or N**

\_\_\_3. Compound – only one type of compound present. **IS THIS PURE: Y or N**

\_\_\_4. Mixture of two compounds – two types of compounds present. **IS THIS PURE: Y or N**

\_\_\_5. Mixture of a compound and an element. **IS THIS PURE: Y or N**

|  |  |  |
| --- | --- | --- |
| Substance | **pure element, pure compound, or mixture?** | **If a mixture, homogenous or heterogeneous?** |
| 1. Sausage |  |  |
| 2. Steam |  |  |
| 3. Salt Water (NaCl + H2O) |  |  |
| 4. Pencil lead (C) |  |  |
| 5. Dirt |  |  |
| 6. Pepsi |  |  |
| 7. Silver (Ag) |  |  |
| 8. Ammonia (NH3) |  |  |
| 9. A burrito |  |  |
| 10. Italian Dressing |  |  |
| 11. Chicken broth |  |  |
| 12. Lemonade (no pulp) |  |  |
| 13. Plain plastic bag |  |  |
| 14. Soot in our air |  |  |
| 15. Rubbing alcohol (70%) |  |  |
| 16. Brass (like trumpets) |  |  |
| 17. Epsom salt (MgSO4) |  |  |