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 (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

**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 (Na2HPO4) |  |  |
| 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.

\_**E**\_Diamond (C) \_**C**\_Sugar (C6H12O6) \_**M**\_Milk \_**E**\_Iron (Fe)

\_**M**\_Air \_**C**\_Sulfuric Acid (H2SO4) \_**M**\_Gasoline \_**X**\_Electricity

\_**E**\_Krypton (K) \_**E**\_Bismuth (Bi) \_**E**\_Uranium (U) \_**M**\_Popcorn

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

\_**C**\_Ammonia (NH3)\_**C**\_Salt (NaCl) \_**X**\_Energy \_**E**\_Gold (Au)

\_**M**\_Wood \_**M**\_Bronze \_**M**\_Ink \_**M**\_Pizza

\_**C**\_Dry Ice (CO2) \_**C**\_Baking Soda (NaHCO3)\_**E**\_Titanium (Ti) \_**M**\_Concrete

**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 (Na2HPO4) | **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** |