Classify each of the following as an element, compound, solution or heterogeneous mixture.

1. Table Salt **compound**
2. Apple **heterogeneous mixture**
3. Plutonium **element**
4. Water **compound**
5. Calcium **element**
6. Raisin Bran **heterogeneous mixture**
7. Gasoline **solution**
8. Calcium Bromide **compound**
9. Iced Tea (no ice)**solution**
10. Silver **element**
11. Chocolate Chip Cookie **heterogeneous mixture**
12. Carbon Dioxide **compound**
13. Kool-Aid **solution**
14. Mud **heterogeneous mixture**
15. Vegetable Soup **heterogeneous mixture**
16. Pure Air **solution**
17. Bronze **solution**
18. Neon **element**
19. Ammonium Nitrate **compound**
20. Spaghetti and meatballs **heterogeneous mixture**
21. Ethanol (ethyl alcohol) and water will form a solution. Both are liquids at room temperature. How is it determined which one is the solvent?

**The solvent would be the one that we have the**

**most of (the major component)**

1. Sugar is dissolved in a cup of hot coffee. Is the sugar a solute or solvent? How do you know?

**Sugar is the solute because it dissolves in the hot coffee.**

1. State a difference between a compound and a solution.

**A compound is a chemical combination with a set ratio of atoms**

**of different elements whereas a solution is a physical combination**

**(mixture) with a composition that can vary.**

1. State a difference between a compound and an element.

**A compound contains atoms of more than one element whereas**

**an element contains atoms of only one type of element.**

1. State a difference between a solution and a heterogeneous mixture.

**A solution is homogeneous in other words it is uniform throughout.**

**A heterogeneous mixture has physically separate**

**sections to it (it is not uniform).**

Classify each of the materials below. In the center column, state whether the material is a **pure substance** or a **mixture**. If the material is a pure substance, further classify it as either an **element** or **compound** in the right column. Similarly, if the material is a mixture, further classify it as **homogeneous** or **heterogeneous** in the right column. Write the entire word in each space to earn full credit.

|  |  |  |
| --- | --- | --- |
| Material | Pure Substance ***or Mixture*** | ***Element, Compound,***  ***Homogeneous, Heterogeneous*** |
| concrete | Mixture | ***Heterogeneous*** |
| sugar + pure water  (C12H22O11 + H2O) | Mixture | ***Compound*** |
| iron filings (Fe) | Pure Substance | ***Element*** |
| limestone (CaCO3) | Pure Substance | ***Element*** |
| orange juice (w/pulp) | Mixture | ***Heterogeneous*** |
| Pacific Ocean | Mixture | ***Heterogeneous*** |
| air inside a balloon | Mixture | ***Homogeneous*** |
| aluminum (Al) | Pure Substance | ***Element*** |
| magnesium (Mg) | Pure Substance | ***Element*** |
| acetylene (C2H2) | Pure Substance | ***Compound*** |
| tap water in a glass | Mixture | ***Homogeneous*** |
| soil | Mixture | ***Heterogeneous*** |
| pure water (H2O) | Pure Substance | ***Compound,*** |
| chromium (Cr) | Pure Substance | ***Element,*** |
| Chex mix | Mixture | ***Heterogeneous*** |
| salt + pure water  (NaCl + H2O) | Mixture | ***Homogeneous*** |
| benzene (C6H6) | Pure Substance | ***Compound*** |
| muddy water | Mixture | ***Heterogeneous*** |
| brass  (Cu mixed with Zn) | Mixture | ***Homogeneous*** |
| baking soda (NaHCO3) | Pure Substance | ***Compound*** |