

**Catalyst Exercise:** 9/22/2014

1. Using Reference Table S, write the name for the symbol or the symbol for the name.

a) Cu \_\_\_\_\_

b) tin \_\_\_\_\_

c) O \_\_\_\_\_

d) nitrogen \_\_\_\_\_

e) Ni \_\_\_\_\_

f) gold \_\_\_\_\_

Oct 28-6:45 AM

**Catalyst Exercise:** 9/22/2014

1. Define the terms: element, compound, and mixture.

2. Provide an example of an element, compound, and mixture.

Sep 24-6:55 AM

**Catalyst Exercise:** 9/24/2014

1. Have your homework out for me to check.

2. What are the seven diatomic elements?

3. Draw a particle diagram for each of the following samples.

a) 8 molecules of monatomic He

b) 4 molecules of diatomic H<sub>2</sub>

c) 4 molecules of the compound H<sub>2</sub>O

Sep 24-6:50 AM

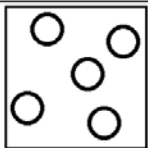
**Matter's Composition Note Sheet**

**How can we classify matter?**

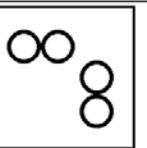
- Matter can be divided into two categories:
  1. **pure substance** - an element or compound; has definite and constant composition, made of one thing. E.g. salt or sugar.
    - **element** - made up of one type of atom (the smallest particle of an element that still has the properties of that element); CANNOT be broken down.
    - **compound** - made up of two or more **different** elements (two or more different types of atoms - e.g. NaCl or HF) bonded together in a specific ratio; CAN be broken down through a chemical reaction.
  2. **mixture** - made up of combinations of elements and/or compounds, e.g. two different elements, an element and a compound, etc.; NOT chemically combined, can be separated based on physical properties.
    - **homogeneous mixture** - is mixed evenly (uniform), it is the same throughout. A sample from the top is the same as a sample from the bottom. Withstand the test of time; if you let it sit it won't separate. E.g. air, Windex, sugar water.
    - **heterogeneous mixture** - is not mixed evenly, it is different throughout. A sample from the top may be different from a sample from the bottom. E.g. beach sand, gravel.

Oct 28-6:48 AM

- Types of elements:
  1. A complete list of the different types of elements is the **periodic table**.
  2. Elements take two forms:
    - **monatomic** - composed of one atom.
    - **diatomic** - composed of two of the same atom combined.
  - The seven diatomic elements are: **H<sub>2</sub>**, **N<sub>2</sub>**, **O<sub>2</sub>**, **F<sub>2</sub>**, **Cl<sub>2</sub>**, **Br<sub>2</sub>**, and **I<sub>2</sub>**.



This box contains five (5) atoms of a **monatomic** element.



This box contains two (2) molecules of a **diatomic** element.

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- How is an element identified?
  1. An element is identified by its **atomic number**, the number of protons in the nucleus.
    - a. Every helium atom has an atomic number of **2**.
    - b. Every atom of calcium has an atomic number of **20**.
    - c. Every atom of gold has an atomic number of **79**.

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- Examples of homogeneous mixtures:
  - **aqueous solution** \_\_\_\_\_ - mixed with WATER; denoted by the symbol (aq). To separate this type of mixture we must use **evaporation** \_\_\_\_\_. They are **transparent** \_\_\_\_\_ you can see through them.
  - **alloy** \_\_\_\_\_ - a mixture of two or more metals. Used to enhance the properties of metals.

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- Examples of heterogeneous mixtures:
  - Muddy Water: Towards the bottom it is mostly mud, towards the top it's mostly water. When shaken the particles will return to being unevenly distributed.
  - Italian Salad Dressing: The different ingredients separate by density. The particles are too large to form a homogeneous mixture.
  - Soil: unevenly mixed sand, dirt, pebbles, etc.

Homogeneous mixture of elements      Homogeneous mixture of an element and compound      Heterogeneous mixture of elements      Heterogeneous mixture of an element and compound

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