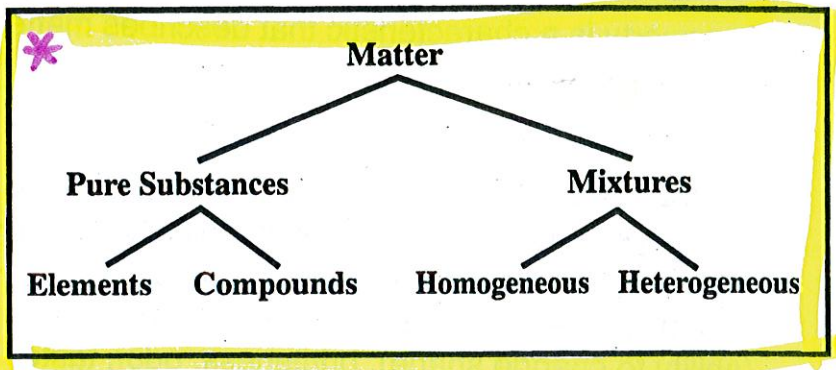
#113

- Read
- Annotate
- Answer qstns

Classification of Matter

Matter is defined as something that
- has mass or weight.
- takes up space (has volume).
- exhibits the property of inertia. (If something is at rest, it stays at rest unless a force acts on it.)
- cannot occupy the same space as other matter at the same time.



All matter can be categorized as either a pure substance or a mixture.

Pure Substances

A pure substance has the same composition throughout, and pure substances often occur naturally. Two examples of pure substances are elements and compounds.

- **Elements** cannot be broken down.
- **Compounds** are formed from the chemical combination of two or more elements. These elements cannot be separated by physical means. The properties of a compound are entirely different from the properties of each of the elements that make up the compound. * Have a formula ($NaCl$, H_2O, CO_2) etc.

Mixtures

Mixtures are formed when two or more substances (solids, liquids, or gases) are physically combined. The parts of a mixture can by physically separated from one another. All of the substances in a mixture retain their original properties.

There are two kinds of mixtures:
- **Homogeneous Mixture**—The parts of the mixture are evenly distributed.
- **Heterogeneous Mixture**—The parts of the mixture are *not* evenly distributed.

Write *P* or *M* before each of the following to indicate whether it is a pure substance or a mixture.

1. P (Compound) table salt ($NaCl$)
2. M mixed nuts (Hetero)
3. P $C_6H_{12}O_6$ sugar (Compound)
4. M fruit salad (Hetero)
5. P (Compound) aspirin
6. M prepared instant coffee (Homo)

Write *HO* or *HE* before each of the following to indicate whether it is a homogeneous mixture or a heterogeneous mixture.

7. HE oil & vinegar salad dressing – herbs, oil, vinegar
8. HE soil (inorg + org matter)
9. HO seawater (H_2O, NaCl, minerals)
10. HO mayonnaise (colloid)
11. HO bronze (Copper and Tin mixed evenly)
12. HO soda pop (High fructose corn syrup, CO_2, H_2O, phosphoric acid) distributed evenly