

Notes: 1.1 Describing Matter

Matter is anything that has mass and takes up space.

Properties of Matter

All matter has the general properties of mass, weight, volume, and density.

Other properties of matter may describe an objects color, odor, size, shape, texture, and hardness.

Chemistry is the study of matter and how matter changes.

A substance is a single kind of matter that is pure,, meaning it always has a specific makeup- or composition- and a specific set of properties.

Every form of matter has two types of properties...

- 1) Physical properties, which can be observed without changing it into another substance.
Examples: color, texture, flexibility, luster, state of nature (solid, liquid, gas)
- 2) Chemical properties that describes its ability to chemically change into a different substance.
Examples: flammability, ability to chemically react (rust from a nail),
Creation of new substances with new properties (gas from bread when rising.)

Elements

An element is a pure substance that can't be broken down into any other substances by chemical or physical means. They are the simplest substance.

Examples: oxygen, iron, gold, hydrogen

An atom is the basic particle from which all elements are made.

Atoms may combine with other atoms to make new, larger substances called molecules.

Example: two hydrogen atoms combine with one oxygen atom to form a molecule of water. H_2O

Compounds

A compound is a pure substance made of two or more elements chemically combined in a set ratio.

A compound may be represented by a chemical formula, which shows the elements in the compound and the ratio of atoms

Ex: H₂O

When elements are chemically combined, they form compounds having properties that are different from those of the un combined elements.

Compounds can't be separated by physical means, they can only be separated by chemical means.

Mixtures

A mixture is made of two or more substances- elements, compounds, or both- that are together in the same place, but are not chemically combined.

Two types of mixtures...

Heterogeneous Mixtures:

You can see the different parts that make up the mixture

Ex: The parts of a salad.

Homogeneous Mixtures:

Because they are so evenly mixed, you can't see the different parts.

Ex: salt water

Mixtures differ from compounds in two ways...

- 1) Each substance in a mixture keeps its individual properties.
- 2) The parts of a mixture are not combined in a set ratio.
- 3) Mixtures can be separated by physical means

Ex: filtration, magnetism, evaporation, distillation