

Chapter 1-1

- Matter is anything that has mass and occupies space (volume).
- Matter is identified with properties such as mass, volume, texture, color, shape, size,.....
- The study of the properties of matter is called Chemistry.
- Kinds of matter:
 - A. Element: simplest form of matter, can't be broken down into simpler forms by ordinary methods, has one kind of atom. Ex. Carbon (C), Oxygen (O), Aluminum (Al), Copper (Cu), Magnesium (Mg), Sodium (Na). The one or two letter symbols represent elements.
 - B. Compound: two or more elements combined chemically in a specific ratio, has different properties than its elements. Ex. Water (H₂O). A formula shows the elements in a compound and their ratio.
 - C. Mixture: two or more substances (elements or compounds) joined physically and not in a specific ratio.
- Changes of Matter:
 - A. Physical: only appearance changes. Ex. Tearing, freezing, boiling.
 - B. Chemical: chemical make-up changes, involves chemical reaction. Ex. Burning, rusting.

Chapter 1-2

Property	Definition	SI Unit	Equipment to Measure	Other Info
Mass (M)	Amount of matter	Kilogram	Balance	
Volume (V)	Space occupied	Cubic Meter for solids Liter for liquids	Metric ruler (l x w x h) for solids Graduated cylinder for liquids	Know how to find the volume of an irregular object.
Density	M/V	Kilogram/Cubic meter for solids Kilogram/Liter for liquids		It identifies the substance. It is the same for all samples of the substance.
Weight	Measure of the gravity force on an object	Newton	Spring scale	Changes due to location as the force of gravity changes

Chapter 1-3

- The smallest particle of an element which is still the element is an atom.
- Two or three elements joined chemically in a certain ratio form a compound.
- The smallest part of a compound which is still the compound is a molecule.
- Therefore atoms join to form molecules.

- A chemical bond is the attractive force between atoms in a molecule or between elements in compounds.

Chapter 1-4

- Gold (Au) can be separated from a mixture by panning or machines called dredges using density differences.
- Copper (Cu) can be separated from a mixture by electrolysis that involves a chemical change by using electric current to break down the compound.
- Iron (Fe) can be separated from a mixture by smelting that involves a chemical reaction.

- Alloy is 2 or more metals mixed physically to give it a better quality, such as not rusting or being heat resistant. Ex. Stainless steel, brass, bronze.