SOME BASIC CONCEPTS OF CHEMISTRY

Chemistry: Chemistry is the branch of science that deals with the composition, structure and properties of matter. Chemistry is called the science of atoms and Molecule

Branches of Chemistry

Organic Chemistry :-This branch deals with study of carbon compounds especially hydrocarbons and their derivatives.

Inorganic Chemistry :-This branch deals with the study of compounds of all other elements except carbon. It largely concerns itself with the study of minerals found in the Earth's crust.

Physical Chemistry :-The explanation of fundamental principles governing various chemical phenomena is the main concern of this branch. It is basically concerned with laws and theories of the different branches of chemistry.

Analytical Chemistry :-This branch deals with the qualitative and quantitative analysis of various substances.

Biochemistry :-This branch deals with the chemical changes going on in the bodies of living organisms; plants and animals.

PROPERTIES OF MATTER AND THEIR MEASUREMENT

Every substance has unique or characteristic properties. These properties can be classified into two categories (**chemical properties** and **physical properties**).

Chemical properties :- the properties which can be measured or observed with changing the identity or the composition of the substance. Are characteristic reactions of different substances; these include acidity or basicity ,reactivity, combustibility etc.

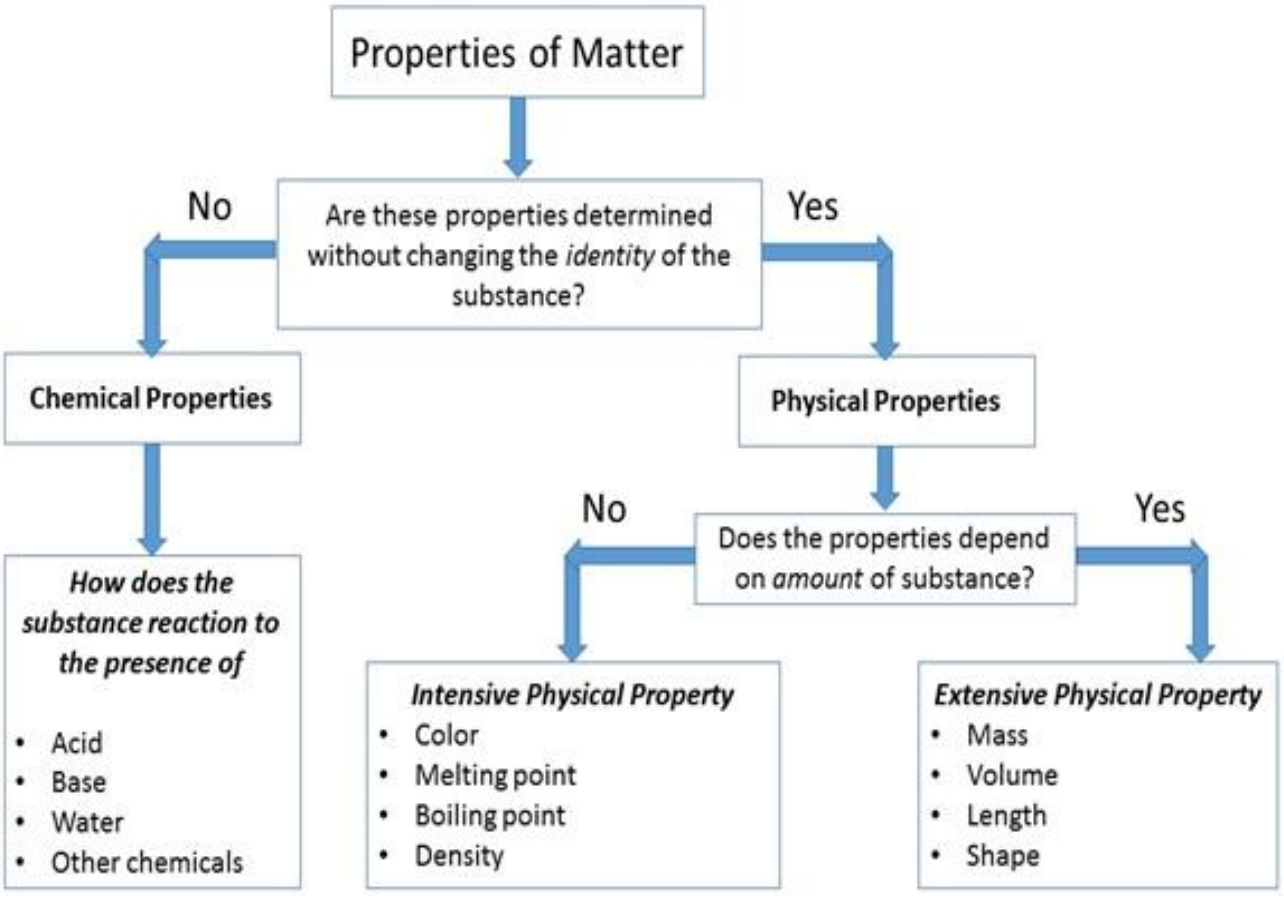
BASIC CONCEPTS

The measurement or observation of chemical properties requires a chemical change to occur, for examples . Burning of Mg , acid, base, water

Physical properties :- the properties which can be measured or observed without changing the identity or the composition of the substance.

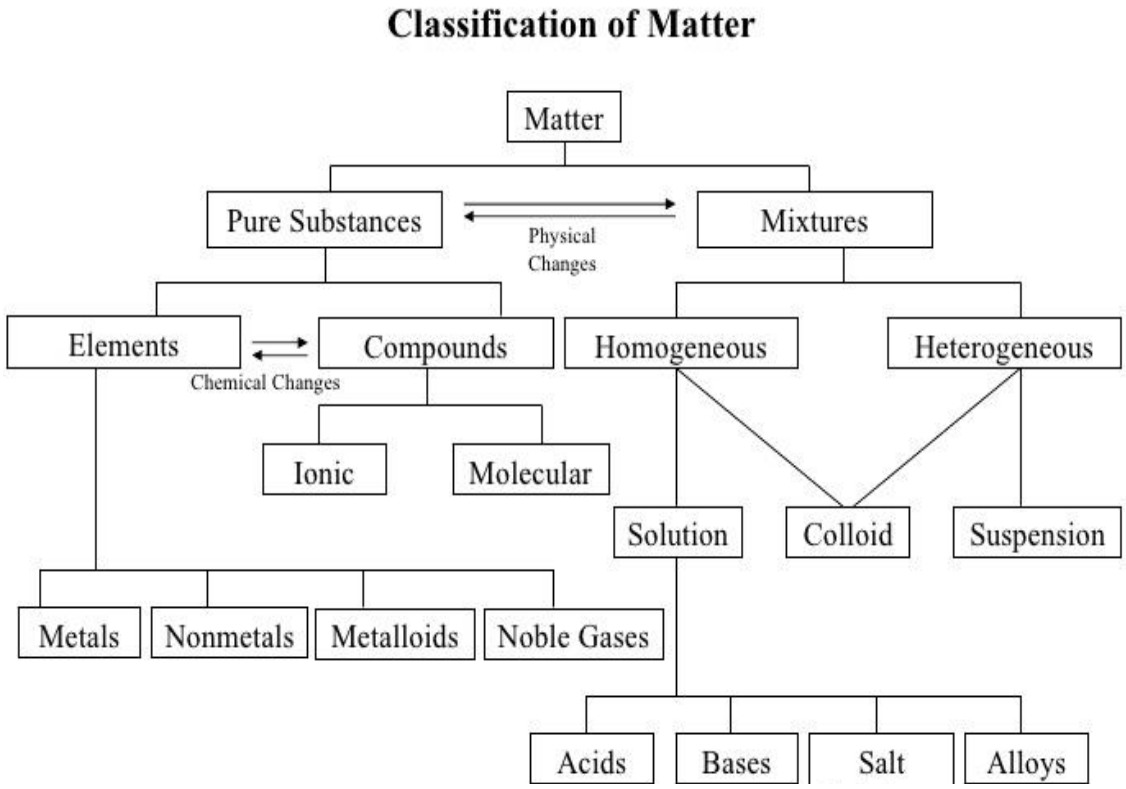
There are two types of physical properties, ***the intensive property***, a physical property that will be the same regardless of the amount of matter that means the property does not depend on the system size or the amount of material in the system. examples include refractive index, density, color, melting point and boiling point

While ***the extensive property***, a physical property that will change if the amount of matter changes, the property is proportional to the amount of material in the system for examples mass ,volume, length and shape.



BASIC CONCEPTS

Chemical Classification of matter



Matter

Matter is a substance that has inertia and occupies physical space. According to modern physics, matter consists of various types of particles, each with mass and size.

Substance

Any material that possesses physical properties is called a substance

Mixtures

a mixture is a combination of two or more elements or compounds in any proportion

So that the components do not lose their identity. Air is an example of a mixture; Mixtures are of two types, homogeneous and heterogeneous.

BASIC CONCEPTS

Homogeneous mixtures
Have the same composition throughout the sample. The components of such mixtures cannot be seen under a powerful microscope. They are also called solutions. Examples of homogeneous mixtures are air, gasoline, etc.

Heterogeneous mixtures
Consist of two or more parts (phases), which have different compositions. by testing a sample of a heterogeneous mixture, can see the separate components.
Examples of Heterogeneous Mixtures . Sugar and sand form. If look closely, you can identify tiny sugar crystals and particles of sand.

Elements
An element is the simplest form of matter that cannot be split into simpler substances or built from simpler substances by any ordinary chemical or physical method. There are 114 elements known to us, out of which 92 are naturally occurring while the rest have been prepared artificially.
Elements are further classified into metals, non-metals, metalloids and noble gases.

Compounds
A compound is a pure substance made up of two or more elements combined in a definite proportion by mass, which could be split by suitable chemical methods.

Solution
A solution is a homogeneous mixture of one or more solutes dissolved in a solvent. Many different kinds of solutions exist. For example, a solute can be a gas, a liquid or a solid. Solvents can also be gases, liquids or solids.