**Introduction to Chemistry**

Chemistry is defined as the branch of science that deals with the structure composition, properties and behavior of matter.

**Phases of Matter**

Matter is anything that has weight/mass and occupies space/volume.  
States of Matter:  
(i) Solid - e.g. soil  
(ii) Liquid - e.g. water  
(iii) Gas - e.g. Nitrogen

- solid is made up of particles which are very closely packed. Hence has a definite/fixed shape and fixed/definite volume /occupies definite space. It has a very high density.  
- liquid is made up of particles which have some degree of freedom. It thus has no definite/fixed shape. It takes the shape of the container it is put. A liquid has fixed/definite volume/occupies definite space.  
- gas is made up of particles free from each other. It thus has no definite/fixed shape. It takes the shape of the container it is put. It has no fixed/definite volume/occupies every space in a container.

**Methods for Separation of Mixtures**

A mixture is a combination of two or more substances that can be separated by physical means  
Some of the simple methods that can be used to separate mixtures include;  
  
i) **Sorting/picking** - the method involves physically picking one pure substance from a mixture with another such as sorting maize from maize-beans mixture  
ii) **Decantation** - a method that involves pouring out a liquid from a solid that has settled /sinking solid in it. e. g. Decanting water from sand.  
iii) **Filtration** - this involves sieving/passing particles of a mixture through a filter containing small holes that allow smaller particle to pass through but do not allow bigger particle to pass through.  
iv) **Skimming** - this involves scooping floating particles. E.g. leaves from water

**The Role of Chemistry in Society**

(i) Washing/cleaning with soap  
(ii) Understanding chemicals of life  
(iii) Baking  
(iv) Medicine  
(v) Fractional distillation of crude oil  
(vi) Manufacture of synthetic compounds/substances  
(vii) Diagnosis/test for abnormal body functions.  
(viii) Careers such as; chemical engineering, veterinary medicine, chenistry teacher among others

**Rules of the School Chemistry Laboratory**

(i) Enter the laboratory with permission in an orderly manner without rushing/pushing/scrabbling  
(ii) Do not try unauthorized experiments because they couyld be harmful  
(iii) Do not taste any chemical in the laboratory. They may be poisonous.  
(iv) Waft gas fumes to your nose with your palm. Do not inhale/smell gases directly. They may be highly poisonous/toxic.  
(v) Boil substances with mouth of the test tube facing away from others and yourself. Products of heating solids may be a highly poisonous/toxic gas.  
(vi) Wash with lots of water any skin contact with chemicals immediately  
(vii) Read and follow safety instruction.  
(viii) Clean your laboratory work station after use  
(ix) In case of fire, remain calm, switch of the source of fuel-gas tap. Leave the laboratory through the emergency door  
(x) Do not carry unauthorized item from a chemistry laboratory  
(xi) All experiments that evolve/produce poisonous gases should be done in the open or in a fume chamber.  
(xii) Report immediately to teacher/laboratory technician any irritation, cut, burn, bruise or feelings arising from laboratory work.  
(xiii) Use fire extinguishers near the chemistry laboratory to put of medium fires. Leave strong fires wholly to professional fire fighters

**Chemistry Laboratory Apparatus**

An apparator /apparatus are scientific tools/equipment used in performing scientific experiments. They are classfified into difefrent categories as follows;

[Apparatus for measuring volume](https://esomake.co.ke/secondary/chemistry/introduction-to-chemistry/apparatus-for-measuring-volume/)

[Apparatus for measuring mass](https://esomake.co.ke/secondary/chemistry/introduction-to-chemistry/apparatus-for-measuring-mass/)

[Apparatus for measuring temperature](https://esomake.co.ke/secondary/chemistry/introduction-to-chemistry/apparatus-for-measuring-temperature/)

[Apparatus for heating/Burners](https://esomake.co.ke/secondary/chemistry/introduction-to-chemistry/apparatus-used-in-heating/)

- Apparatus for measuring time  
- Apparatus for scooping  
- Apparatus for putting liquids/solid for heating  
- Apparatus for holding unstable apparatus (during heating)  
- Apparatus for holding/directing liquid solutions/funnels (to avoid spillage)