

# Introduction to Chemistry

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## What is chemistry?

Chemistry is the branch of science which deals with the study of various substances around us. This includes study of their composition, methods of preparation, properties, and reactions with other substances.

## Branches of Chemistry

- Physical Chemistry: Deals with the structure of matter and the theories and laws which explain the transformation of matter from one form into another.
- Inorganic Chemistry: Deals with the chemistry of elements other than carbon and its related compounds.
- Organic Chemistry: Deals with the reactions of compounds of carbon.
- Analytical Chemistry: Deals with separation, identification and quantitative determination of the compositions of different substances.
- Biochemistry: Deals with the chemistry of substances consisting of living organisms.

## How is the behaviour of a material studied?

To study the behaviour of a material, experiments are carried out with the particular material under various conditions. During the experiment, the particular material is carefully observed and then the behaviour of the material is concluded.

## Importance of Chemistry

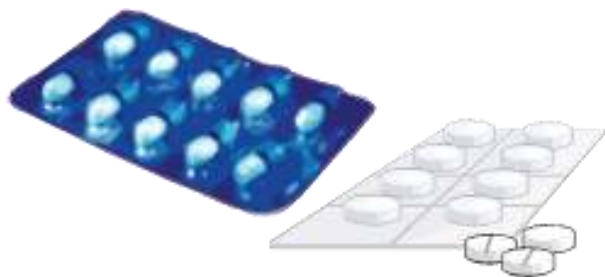
Chemistry plays a very important role in almost all walks of life. Major contributions of chemistry in various fields are as follows.

### Agriculture

- Chemical fertilisers such as urea, ammonium sulphate, calcium nitrate are used extensively these days to increase the yield of crops.
- Chemicals are used as food preservatives.
- Chemicals in the form of insecticides, fungicides, and weedicides are used to kill insects, fungi, and weeds and they help in increasing the production of the crops.

### Medicine

When we fall ill, doctors prescribe medicines to us. These medicines (tablets, capsules, injections, etc.) contain chemicals.



## Industry

Chemistry deals with the manufacture of

- plastics and plastic products
- durable synthetic fibres such as rayon nylon, terylene, etc.
- paints, varnishes, synthetic rubber, glass, fuels, etc.

These products are widely used in the industries as well as at homes.

## Life style

Advances in chemistry have helped us in making various products that have made our lives easier and comfortable. For example:

- Soaps and detergents
- Air conditioners, refrigerators, cars, mobile phones, etc.



## Cosmetic industry

All types of creams, powders, lotions, lipsticks, perfumes are a result of work done in the field of chemistry.



## Space research

The rockets that carry the various satellites into the outer space propel using fuels. Advances in the field of chemistry have helped us in developing better rocket propellants. Chemistry is also applied in various other aspects of making satellites such as providing the energy for various functions of the satellite.

## Energy

In today's time there is a need to conserve fossil fuels and use renewable sources of energy. Researches in the field of electrochemistry have led to the development of various cells which can be used to tap conventional sources of energy like solar energy, wind energy, hydro energy etc.