

Additional Material for Build a Molecule Tutorial

An atom is a particle of matter that uniquely defines a chemical element. For example atom of Helium(He). An atom has a central nucleus. This nucleus is surrounded by one or more electrons. Electrons are negatively charged. The nucleus is positively charged and contains one or more heavy particles protons and neutrons.

A molecule is a group of two or more atoms that are chemically bonded together by attractive chemical forces. It is the smallest particle of an element or a compound that is capable of an independent existence and shows all the properties of that substance.

A molecule retains the chemical and physical properties of the substance.

Atoms of different elements join together in definite proportions to form molecules.

The chemical formula of a molecule or a compound is a symbolic representation of its composition.

The molecules of compounds can be visualized in 3D either in Spacefill format or Ball and stick format.

Types of molecules:

Molecules can be homonuclear or heteronuclear. Several non-metallic elements occur as homonuclear diatomic molecules in nature for example hydrogen, oxygen and nitrogen. The heteronuclear diatomic molecules include atoms of two different elements. For example carbonmonoxide(CO) or Nitricoxide(NO).

Molecules containing more than two atoms are called polyatomic molecules. For example ozone(O₃), nitrogen dioxide(NO₂) and Sulphur(S₈)

There are molecules with a large number of atoms called polymers example polyethene.