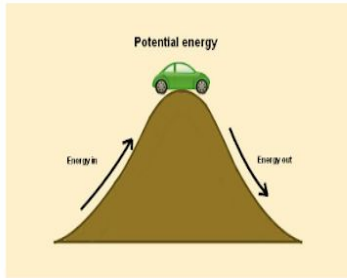


# Energy

The capacity of a body to do work is called the energy of the body. The SI unit of energy is joule (J). Energy can exist in various forms. Different forms of energy are:



**1. Mechanical energy:** Energy by the virtue of which a body can do some mechanical work directly, is called mechanical energy. The common forms of the mechanical energy are:

**Kinetic energy:** The energy possessed by a body due to its motion is called kinetic energy. Kinetic energy (K. E) of a body having mass  $m$ , and velocity  $v$ , is equal to equation That is,  $K. E = \frac{1}{2}mv^2$

**Potential energy:** The energy possessed by a body due to its position or configuration is called potential energy. Potential energy (P.E) of a body is  $P.E = m \times g \times h$

Where,  $m$  is a mass of the body,  $g$  is the acceleration due to gravity and  $h$  is height.

**2. Electrical energy:** A form of energy created by the movement of electrons is called electrical energy. I.e. hydropower, generator, etc.

**3. Light energy:** Light is also form of energy that makes things visible. We use light in the different process like lightening the houses, running industries, etc. Plants use energy to make food.

**4. Heat energy:** Heat energy is obtained by burning combustible substances like coal, gas, kerosene, firewood, etc. We use heat energy to keep warm and to cook food.

**5. Sound energy:** Sound energy is also a form of energy which is produced by vibrations. We hear the sound when the vibrations travel through the air around it to vibrate.

**6. Chemical energy:** The energy stored in the matter such as the energy stored in food and fuels, is chemical energy.

**7. Nuclear energy:** The neutrons and protons exert an attractive force on each other when present in the nucleus. The energy associated with them is called nuclear energy.

**8. Magnetic energy:** The energy can also be produced by a magnet. A magnet is the source of energy. Electricity can be produced with the help of the magnet. It is more powerful and also can be used to lift a heavy weight.

## Transformation of energy

Conversion of energy from one form to another form is called the transformation of energy.

When a candle burns, chemical energy changes into light and heat energy. When a fan is switched on, it converts an electrical energy into mechanical energy. Similarly, when a lamp glows, it changes electrical energy into light and heat energy. These examples show that one type of energy can be changed into another type.

## Examples:

1. A steam engine changes heat energy into mechanical energy.
2. Solar car converts solar energy into mechanical energy.
3. A microphone converts sound energy into electrical energy.

## Conservation of energy

Energy can neither be created nor be destroyed but can only be changed from one form to other. This is called the principle of conservation of energy.