

## WHY DO WE RESPIRE ?

All machines need energy to run. All automobiles need petrol or diesel to run. Petrol and diesel are burnt in the engine using oxygen present in the air.

We need heat energy for heating and cooking. This energy is obtained by burning coal, LPG etc. using oxygen of the air.

Our body also needs energy for its various activities. This energy is produced in our body from the food we take. The food we take has stored chemical energy in it. This energy is released when food is digested and the components of the digested food react with oxygen in the cells. This process is called **respiration**. Therefore, we respire to produce energy needed by the body for its various activities.

To get oxygen, we need to

- breathe fresh air rich in oxygen and
- transport the inhaled oxygen from respiratory organs to every cell in the body.

## RESPIRATION

All living organisms need oxygen to produce energy from the food they eat. The needed oxygen comes from the air we breathe in. During slow combustion of food inside the body, carbon dioxide and water vapour are produced. Carbon dioxide and water vapour go out of our body when we breathe out the air.

The process of taking oxygen into the cells, using it for producing energy and removing the gaseous waste products (carbon dioxide and water vapour) is termed as **respiration**. Respiration occurs in the living cells.



### Do You Know ?

*Respiration is the fundamental process of energy release in our body.*

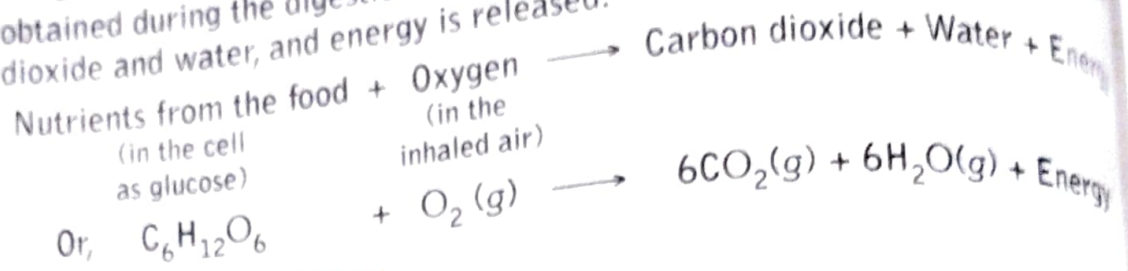
Respiration involves two processes. These are described below :

### Breathing or External Respiration

The process of inhaling fresh air and exhaling the used air is called **breathing** or **external respiration**. During breathing, oxygen is taken in and carbon dioxide and water vapour are thrown out of the body through respiratory organs.

### Cellular Respiration or Internal Respiration

Cellular respiration takes place inside the cells. In this process, glucose obtained during the digestion of food is oxidised by the inhaled oxygen to carbon dioxide and water, and energy is released.

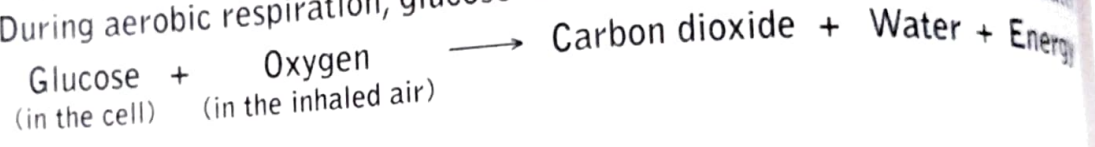


### TYPES OF RESPIRATION

There are two types of cellular respiration.

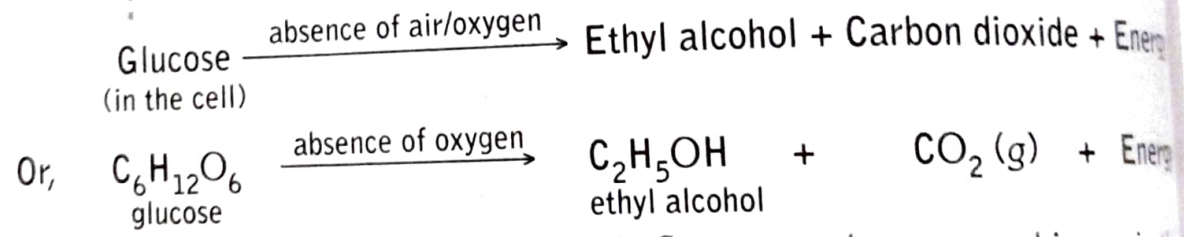
#### Aerobic Respiration

Respiration in the **presence** of oxygen is termed as **aerobic respiration**. During aerobic respiration, glucose is oxidised to carbon dioxide and water.



#### Anaerobic Respiration

Respiration that takes place in the **absence** of air is called **anaerobic respiration** or **fermentation**. During anaerobic respiration, glucose is converted into ethyl alcohol and carbon dioxide.



#### Do You Know ?

Some organisms that can survive in the absence of oxygen/air are called **anaerobes**.