

Differentiate, distinguish, compare and explain what is the main differences between respiration and combustion. Comparison and Difference.

## Differences between Respiration and Combustion

S.No.	Respiration	Combustion (Burning)
1	It is a multi-step reaction.	It is a single step reaction.
2	Biochemical phenomenon, taking place in steps in a controlled manner.	Physico-chemical phenomenon that takes place spontaneously.
3	Chemical bonds break one after another, releasing energy gradually.	Many chemical bonds break simultaneously, releasing a large amount of energy at a time
4	Takes place inside the cells (Intracellular process).	It is not cellular.
5	Temperature remains low (controlled) due to liberation of heat in very small packets.	Temperature rises considerably.
6	Several intermediate compounds are produced	No intermediate compounds are produced
7	About 50% of the energy is stored.	Energy is not stored.
8	Occurs in a controlled manner (Biologically controlled).	An uncontrolled process.
9	Each step of respiration is catalyzed by an enzyme.	No enzymes are involved.
10	Most of the energy is entrapped in new chemical bonds (ATP) so that little is lost as heat.	Most of the energy dissipates away as heat. NoATP is formed.
11	Oxygen is involved in terminal oxidation or oxidation of reduced coenzymes	Oxygen is used in direct oxidation
12	Light is not an accompaniment of respiration, though certain organisms can produce light	Light is often emitted.