

Distinguish, differentiate, compare and explain what is the difference between Photosynthesis and Respiration. Comparison and Differences.

## **Difference between Photosynthesis and Respiration**

1. Photosynthesis occurs only in Chlorophyll containing cells of plants. Respiration occurs in all plants and animal cells.
2. Photosynthesis takes place only in the presence of light. Respiration takes place continually both in light and in the dark.
3. During photosynthesis, radiant energy is converted into potential energy. During respiration, potential energy is converted into kinetic energy.
4. In photosynthesis, sugar, water, and oxygen are products. In respiration,  $\text{CO}_2$  and  $\text{H}_2\text{O}$  are products.
5. First one synthesizes food. The second one oxidizes food.
6. In the first,  $\text{CO}_2$  and  $\text{H}_2\text{O}$  are raw materials. In the second,  $\text{O}_2$  and food molecules are raw materials.
7. Photosynthesis is an endothermal process whereas the other is an exothermal process.
8. Photosynthesis stores energy. Respiration releases energy.
9. In the first, it includes the process of hydrolysis, carboxylation etc. In the second, it includes the process of de-hydrolysis and decarboxylation etc.
10. Photosynthesis results in an increase in the weight. Respiration results in a decrease in weight.
11. Photosynthesis is an anabolic process. Respiration is a catabolic process.
12. Both the process requires cytochrome.