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Oxygen Cycle

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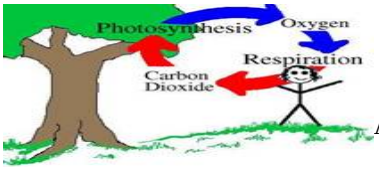
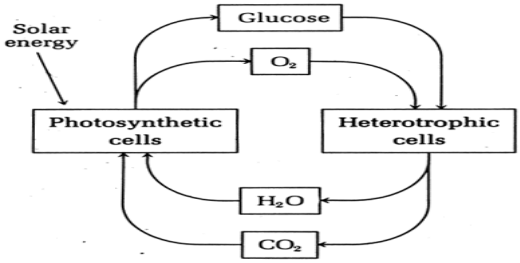
What is Oxygen Cycle?



All living things need oxygen. They use oxygen during the process of creating energy in living cells. The oxygen cycle is one of thebiogeochemical cycles. Other biogeochemical cycles are thecarbon cycle, thenitrogen cycle and thewater cycle. The main driving factor of the oxygen cycle isphotosynthesis.

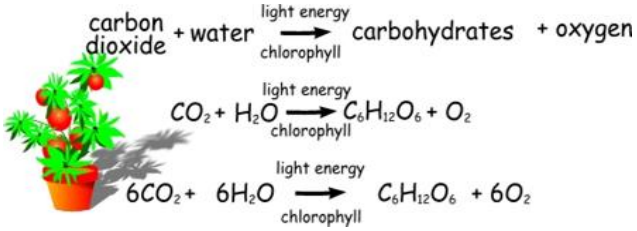


Definition:

The continual interchange of oxygen between the atmosphere and the water, the plants and animals and mineral matter is called the oxygen cycle. In a healthy ecosystem, the rates of oxygen being used up and oxygen uptake are balanced in the water.

Why oxygen is important?

- Humans to breathe
- Needed for decomposition of organic waste.
- Dissolved oxygen supports aquatic life.



Plants use the sunlight to convert carbon dioxide and water into carbohydrates and oxygen in a process called photosynthesis. This means that plants utilize carbon dioxide and release oxygen.

Animals also contribute for the oxygen cycle. Animals breathe in oxygen to break carbohydrates down into energy in a process called respiration.

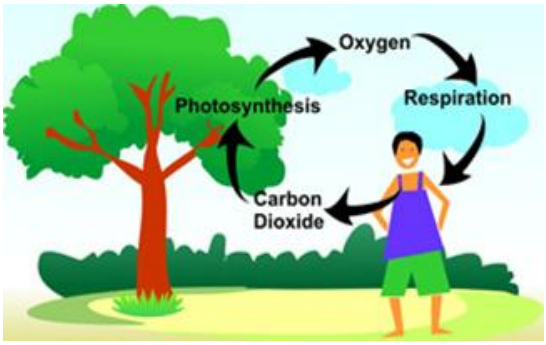
Carbon dioxide produced as an end product in this process is breathed out by animals into the air. Through the metabolism process, the sugars are broken down into water and carbon dioxide. Then the cycle begins again.

The presence of atmospheric oxygen formsozone (O_3) and theozone layer within thestratosphere. This layer is extremely important for all life as it absorbs harmfulultraviolet radiation.

Characteristics of Oxygen

- Oxygen is one of the major compounds found in the atmosphere.
- Not available as an individual atom, but is always available with other elements.
- Have two oxygen atoms.
- Ozone has three oxygen molecules.
- Present in water and carbon dioxide.
- Highly reactive.
- Colorless & odorless gas at ordinary temperatures.
- Turns to a bluish liquid at -183° C.
- Present in the atmosphere in the form of ozone and provides protection to life by filtering out the sun’s ultraviolet rays.
- Burning or combustion is essentially an oxidation reaction

Oxygen Cycle and Environment



- Oxygen cycle plays an important role in decomposition process. When dead tissue decays by a combination of oxidation and

microorganism decay, carbon dioxide is released.

- A slower cycle occurs whenever mineral matter is oxidised, a slow oxygen cycle occurs. (Example formation of rocks).
- Biochemical oxygen demand or BOD is a chemical procedure for determining the amount ofdissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material present in a given water sample. It occurs in an optimum temperature with appropriate time limit.

- Highly concentrated sources of oxygen promote rapid combustion and therefore are fire and explosion hazards in the presence of fuels.

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Reference Links:

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