

UPSC Civil Services Examination

UPSC Notes [GS-I]

Topic: Oxygen Cycle [Geography Notes for UPSC]

Oxygen Cycle

Oxygen

- Oxygen is regarded as the vital element in Earth.
- It is the most common element of the human body.
- Oxygen constitutes about 65% of the mass of the human body and most of this is in the form of water.
- Oxygen also makes up about 30% of the Earth and 20% of the atmosphere.

Processes that consume Oxygen

Breathing

- All flora and fauna consume oxygen when they breathe.
- They breathe in oxygen and breathe out carbon dioxide.

Decomposing

- When flora and fauna die, they decay. During this process, the oxygen is absorbed and carbon dioxide is discharged.

Rusting

- Rusting is also known as oxidation in which iron turns into iron oxide.
- When iron things rust they absorb oxygen.

Combustion

- Without oxygen, it is hard to ignite.
- When things burn, they consume oxygen and discharge it with carbon dioxide.

Processes That Produce Oxygen

Photosynthesis

- The green plants use sunlight to produce nutrients from carbon dioxide and water.
- Photosynthesis in plants usually comprises the chlorophyll and produces oxygen as a by-product.

Sunlight

- Some oxygen is produced when sunlight reacts with water vapor in the atmosphere.
- It is involved in the oxidation of carbohydrates with the release of energy, carbon dioxide, and water.

Oxygen Cycle

- The oxygen cycle is the biogeochemical cycle of oxygen.
- The cycling of oxygen is a highly complex process.
- Oxygen occurs in several combinations and chemical forms.
- It combines with nitrogen to form nitrates.
- It also combines with several other elements and minerals to form different oxides such as the iron oxide, aluminium oxide and others.
- The carbon dioxide is absorbed by plants during photosynthesis.
- A considerable amount of oxygen is produced from the decomposition of water molecules by sunlight during photosynthesis.
- Respiration by humans and animal consumes oxygen and releases carbon dioxide into the atmosphere.
- Again this carbon dioxide is again, taken up by plants, for photosynthesis and the process repeat.

