

Earth Cycle of Resources

Before you Begin

We constantly need oxygen to breathe, water to drink and food to live. The carbon dioxide which animals breathe out is converted to oxygen by plants through photosynthesis and vice-versa. This is a continuous process which happens over and over again and hence we call it a “Cycle”. Cycles are part of nature. There is a limited availability of resources like water; elements such as oxygen, carbon and minerals and nature keeps the supply by continuously cycling them. If nature did not recycle these, we would have run out of the resources years ago.

These cycles sustain various aspects of life on Earth including birth, growth, reproduction and death. The water cycle ensure the continuous circulation of water both above and below the ground. As part of the water cycle, water passes through all the different states that it exists as in nature - liquid water, gaseous vapour and solid ice. In addition to water there are a number of other substances that move through the abiotic and biotic components of the Earth. These constitute the biogeochemical cycles (bio = life; geo = Earth; chemical = elements including C, N, O, P). Some common examples of biogeochemical cycles are the carbon, nitrogen, phosphorous, nutrient and oxygen cycles. All these cycles together sustain the world and its various ecosystems.

Decomposition is the process by which organic substances are broken down into simpler matter. The process is a part of nutrient cycle and is essential for recycling the finite matter that occupies physical space in the biosphere. Bodies of living organisms begin to decompose shortly after death. Organisms that do this are known as decomposers.

Decomposers are organisms that break down dead and decaying organisms. They help recycle matter in an ecosystem. Decomposers are heterotrophic and derive energy by consuming other organisms. There are two main categories of decomposers. Chemical decomposers work by using chemicals in their bodies to break down organic matter into simple compounds for energy. Chemical decomposers include bacteria, protozoa, and fungi. Physical decomposers are detritivore that feed on the organic materials. Physical decomposers are mostly macro organisms that can be seen without a microscope. Some examples include worms, mites, flies, and snails.

It would help students to know the important role that different decomposers play in the decomposition process. Some decomposers are microscopic in nature e.g. bacteria and others are large enough and visible to the naked eye, e.g. earthworm. A short nature walk could help introduce students to some of the larger decomposers.

WATER CYCLE

