

Cycles of matter



**ASSIGN
BUSTER**

1. Explain the role of decomposing bacteria in the carbon and nitrogen cycles.

In the carbon cycle, decomposing bacteria release carbon from the decaying bodies or waste into the atmosphere. Without them, it won't be able for any organism to access the carbon stored in dead bodies. In the nitrogen cycle, decomposing bacteria breaks down animal waste, which creates ammonia and nitrate products rich in nitrogen. Although no animals or plants cannot directly use all the nitrogen found in the atmosphere, such form of nitrogen created by the bacteria is useful for plants to use again.

2. What are producers?

Producers are organisms that are able to create their own food through photosynthesis. They are autotrophs (green plants) that are located in the lowest part of the energy pyramid, and provide the source of energy for all the other organisms.

3. What type of organisms are decomposers?

Decomposers are organisms that break down dead animals, plants, or waste, recycling various molecules into plant nutrients. Bacteria are the largest group among all decomposers on Earth.

4. In the nitrogen cycle, what is the role of bacteria that live on the roots of plants?

The bacteria are nitrogen-fixing cyanobacteria, which causes nitrogen fixation. It converts atmospheric nitrogen (N_2) into ammonium (NH_4^+), which can be used to make organic compounds such as amino acids. Some of them

live in a symbiotic relationship with plants of the legume family and are essential to maintaining the fertility of semi-aquatic environments.

5. What geochemical cycle does not involve a stage where the chemical enters the atmosphere?

In the phosphorus cycle, phosphorus does not enter the atmosphere unlike carbon, oxygen, and nitrogen. It remains mostly on land in rock and soil minerals, and in ocean sediments. There, phosphorus exists in the form of inorganic phosphate and is released as the rocks and sediments gradually wear down.

6. The process by which water evaporates from the leaves of plants is called: transpiration

7. Heterotrophs that feed on the remains or organisms are called: consumers

8. How does using fossil fuels affect the carbon dioxide/oxygen cycle?

By burning fossil fuels (coal, oil and natural gas), carbon dioxide is released into the atmosphere. The carbon dioxide prevents solar radiation from escaping from the atmosphere, causing the greenhouse effect, which is the primary cause of global warming.

9. How does deforestation affect the carbon dioxide/oxygen cycle?

Deforestation destroys large forests with massive numbers of trees. Trees play an important role in absorbing carbon and releasing oxygen into the atmosphere by photosynthesis. Since deforestation cuts them down, the amount of carbon dioxide will gradually increase while that of oxygen decreases.