

CLASS NOTES

Class: 8

Topic: Microorganism (Extra Questions)

Subject: SCIENCE

1. Differentiate between viruses and other microorganisms.

Ans:

Viruses

(i) They show the characteristics of living organisms or reproduce only by entering the host organisms.

ii) They are non-cellular microbes.

Other microbes

(i) They do not need to enter any host organism to reproduce or show any characteristics of life.

(ii) They are cellular microbes.

2. What role does sugar play in the preservation of food?

Ans: The role of sugar in food preservation is significant. By adding sugar in the food item, we reduce its moisture content and hence, it stops the growth of the microorganisms.

3. What are antibodies?

Ans: Whenever any harmful disease-causing microorganism enters the human body, the body produces substances to fight with the entered microbe. These substances are called antibodies.

4. What is the difference between Rhizobium and cyanobacteria in the way of fixing nitrogen for the plants?

Ans: Rhizobium lives in the root nodules of leguminous plants in a symbiotic relationship whereas cyanobacteria lives freely in the soil and fixes nitrogen.

5. Ria thought of making curd. For this, she took lukewarm milk, mixed some curd into it and stir well. She kept the mixture in fridge. Next day she observed that curd was not set. Can you tell why the curd did not set?

Ans: Curd did not set because she kept the mixture in fridge. Lower temperature of fridge retarded the growth of Lactobacillus in the mixture.

6. How do vaccines work?

Ans- When a disease-carrying microbe enters our body, the body produces antibodies to fight the invader. The body also remembers how to fight the microbe if it enters again. If dead or weakened microbes are introduced into a healthy body, the body fights and kills the invading bacteria by producing suitable antibodies. The antibodies remain in the body and we are protected from the disease-causing microbes forever. This is how a vaccine works.

7. Explain the process of Nitrogen cycle step by step.

Nitrogen Cycle is a biogeochemical process through which nitrogen is converted into many forms, consecutively passing from the atmosphere to the soil to organism and back into the atmosphere.

Process of Nitrogen Cycle consists of the following steps – Nitrogen fixation, Nitrification, Assimilation, Ammonification and Denitrification.

Nitrogen Fixation

1. Atmospheric fixation: A natural phenomenon where the energy of lightning breaks the nitrogen into nitrogen oxides and is then used by plants.

Nitrification

In this process, the ammonia is converted into nitrate by the presence of bacteria in the soil. Nitrites are formed by the oxidation of Ammonia with the help of Nitrosomonas bacterium species. Later, the produced nitrites are converted into nitrates by Nitrobacter. This conversion is very important as ammonia gas is toxic for plants.

Assimilation

Primary producers – plants take in the nitrogen compounds from the soil with the help of their roots, which are available in the form of ammonia, nitrite ions, nitrate ions or ammonium ions and are used in the formation of the plant and animal proteins. This way, it enters the [food web](#) when the primary consumers eat the plants.

Ammonification

When plants or animals die, the nitrogen present in the organic matter is released back into the soil. The decomposers, namely bacteria or fungi present in the soil, convert the organic matter back into ammonium. This process of decomposition produces ammonia, which is further used for other biological processes.

Denitrification

Denitrification is the process in which the nitrogen compounds makes their way back into the atmosphere by converting nitrate (NO_3^-) into gaseous nitrogen (N). This process of the nitrogen cycle is the final stage and occurs in the absence of oxygen. Denitrification is carried out by the denitrifying bacterial species- Clostridium and Pseudomonas, which will process nitrate to gain oxygen and gives out free nitrogen gas as a byproduct.

