

- There are numerous organisms living around us that we may not be able to see. We can see some of them through a magnifying glass, like the fungus on bread. Some others are so small that they cannot be seen without a microscope.
- These organisms that cannot be seen by unaided eyes are termed microorganisms or microbes.
- **The Microorganisms can be Broadly Classified as:**

Bacteria - They are a group of prokaryotic organisms (does not have membrane-bound nucleus or organelles) that constitute a major part of microorganisms. They can inhabit soil, water, and every other habit found on earth. They can be a few micrometers in length and can be of various shapes like spheres, rods, or spirals. Example - Escherichia coli, coliform bacteria, etc.

Fungi - They are a group of eukaryotic organisms (have a membrane-bound nucleus and organelles) that are usually heterotrophic in nature. Examples - Penicillium, bread mold,

Protozoa - They are a group of unicellular eukaryotic organisms that may be parasitic or living independently and are heterotrophic (cannot prepare their own food) in nature. Example - Amoeba, paramecium, etc.

Algae - They are a group of photosynthetic eukaryotic organisms that are predominantly aquatic. Example - Spirogyra, Chlamydomonas, etc.

These groups of microorganisms may be harmful or useful in nature.

Pathogens

- A pathogen is any organism that causes disease.
- In this context, pathogens are microorganisms.

- Bacteria, protozoa and viruses can be pathogenic.

Carrier

- Carrier is a person or organism infected with an infectious disease agent but displays no symptoms of it.
- They can spread the infection since they already have the pathogen in their bodies.

Vector

- Vector is an organism, which is a biting insect or tick, that can transmit a disease or parasite from one animal or plant to another.
- Common examples are mosquitoes.
- Aedes mosquito spreads dengue virus, Anopheles mosquito spreads the malarial parasite.

Airborne diseases

- Certain diseases can spread by air.
- These diseases are called airborne diseases.
- Influenza is the best example of this type of disease.

Waterborne diseases

- The diseases that spread through water are called waterborne diseases.
- Contaminated water is host to several pathogens.
- Typhoid is the best example of waterborne disease.

Plant diseases

- Certain pathogens can cause diseases in plants. Just like humans, plants can be attacked by bacteria or virus.
- Several micro-organisms cause diseases in plants like rice, potato, wheat, sugarcane, orange, apple and others.

Nitrogen Cycle

The nitrogen cycle is a biogeochemical cycle by which nitrogen is converted into various chemical forms as it circulates among the atmosphere and terrestrial and marine ecosystems.

