

Microorganisms Class 8 Notes

CBSE Class 8 Science Chapter 2 Notes: Microorganisms

If you observe a drop of water from the pond through a microscope, you will see a lot of tiny rounded structures. These tiny creatures are known as microbes or microorganisms. They are all around us and are so small in size that they cannot be seen with bare human eyes. Microbes are classified into four groups as:

- Protozoa
- Bacteria
- Fungi
- Algae

Introduction

Microorganisms

- Microorganisms are microscopic organisms that cannot be seen with the naked eye.
- These organisms are usually unicellular in nature.

The Guys Who Are Everywhere – Bacteria

Bacteria

- Bacteria are unicellular prokaryotic microorganisms.
- Some bacteria are useful for humans while some can be harmful.
- They are of four major types: Bacillus, Vibrio, Cocci and Spirilla

Probiotics

- Probiotics are live bacteria and yeasts that are good for your health, especially the digestive system.

They Love Death – Fungi

Fungi

- Fungi are saprophytic or parasitic organisms.
- They are mostly multicellular and not microscopic.
- However, yeast is a unicellular and microscopic organism.

Fermentation

- Fermentation is a metabolic process that converts sugar to acids, gases or alcohol.

- Fermentation is used in the preparation of curd and alcohol.

Creepy Protozoans

Protozoa

- Protozoa are single-celled microscopic animals which include flagellates, ciliates, sporozoans, and many other forms.
- Few examples are: amoeba, paramecium, euglena, plasmodium etc

Viruses – From Computers to Life

Viruses

- Viruses are organisms that possess nucleic acid but lack the replicating machinery.
- Thus, a virus cannot survive without a living cell.
- Viruses are also considered to be on the borderline between living and nonliving entities.
- Few examples are: influenza virus, HIV, Rabies virus, poliovirus, tobacco mosaic virus etc

Save Yourself – Vaccines and Antibiotics

Vaccines

A vaccine is a biological preparation that provides active acquired immunity to a disease.

- Vaccines are usually made for viral diseases.
- Few examples are Salk vaccine for Polio, Influenza vaccine, Rabies vaccine etc

Antibiotics

Antibiotics is an inorganic or organic compound that inhibits and kills microorganisms.

- Antibiotics usually target bacteria.
- Thus most of the bacterial diseases are treated with antibiotics.

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 hosts to several pathogens.
- Typhoid is the best example of waterborne disease.

Examples of Diseases

Human diseases	Causative Organism	Mode of Transmission
Tuberculosis	Bacteria	Air
Measles	Virus	Air
Chickenpox	Virus	Air/Contact
Polio	Virus	Air/Contact
Cholera	Bacteria	Water/Food
Typhoid	Bacteria	Water
Hepatitis B	Virus	Water
Malaria	Protozoa	Mosquito bite
Sleeping sickness	Protozoa	Tsetse fly

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.

Disease	Pathogen	Mode of Transmission
Citrus canker	Bacteria	Air
Rust of Wheat	Fungi	Air/Seed
Yellow vein mosaic of bhindi	Virus	Insect

Watch What You Eat! – Food Poisoning and Preservation

Food poisoning

- When food contaminated with pathogens or toxins are consumed, it causes food poisoning.
- The most common symptom is a pain in the stomach.
- In severe cases, food poisoning can also cause death.

Food preservation

- Food preservation is the most vital part of the food industry.
- Certain chemicals inhibit the growth of bacteria and increase the life of the cooked food.
- Certain simple preservation methods can be carried out at our home.

Chemical methods

- Chemical preservatives are used in food preservations by major food industries as they are harmless to humans.
- Sodium meta-bisulphate and sodium benzoate are commonly used chemical preservatives.

Uses of common salt

- Common salt also known as sodium chloride is used as a preservative at home.
- Vegetables are pickled using salt as the salt removes water and kills bacteria and fungus cells.

Preservation by Sugar

- Sugar is used for the preservation of jams, jellies and squashes.
- The growth of microbes is restricted by the used of sugar as it reduces the moisture content.

Preservation by oil and Vinegar

- Many food preparations like pickles are preserved by adding either oil or vinegar to them.
- Bacteria cannot grow in such medium.

Pasteurization

- Pasteurization is a process of superheating and cooling the beverages to kill pathogenic microbes.
- Pasteurization ensures the taste of the beverage such as milk does not get destroyed.

Storage and Packing

- Dry fruits and many vegetables are preserved in airtight/air sealed containers.
- The absence of air prevents the growth of bacteria or fungi.

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.

