

**• Introduction**

- Many living organisms are **so tiny** that we **cannot see them with our naked eye**.
- These tiny living beings are called **microorganisms** or **microbes**.
- A **microscope** is needed to observe them.

• **Microorganisms** are **tiny living organisms** found everywhere: air, water, soil, food, and inside our bodies. They can live in **extreme conditions** – hot springs, cold mountains, salty water, etc.

**• Types of Microorganisms**

Type	Description	Examples
Bacteria	Single-celled; some are useful, others harmful	Lactobacillus, E. coli
<b>Viruses</b>	Smaller than bacteria; can only grow inside living cells	COVID-19, Influenza
<b>Fungi</b>	May be single or multi-celled	Yeast, Bread mould
<b>Protozoa</b>	Animal-like; often found in water	Amoeba, Paramecium
<b>Algae</b>	Plant-like; do photosynthesis	Chlorella, Spirogyra

**• Microorganisms are found in**

- In **soil**
- In **water** (ponds, rivers, oceans)
- In the **air**
- On and **inside our body**
- On **spoiled food** or dirty surfaces

**• Useful Microorganisms**

- **Making food:** Bacteria make curd; yeast helps in baking bread.
- **Medicines:** Antibiotics (like penicillin) are made from fungi.
- **Cleaning:** Some microbes help **decompose waste**.
- **Agriculture:** Some bacteria **fix nitrogen** in the soil, helping plants grow.

**• Harmful Microorganisms**

- **Cause diseases** in humans, animals, and plants.
- **Spoil food** and produce harmful toxins.
- **Examples of diseases** caused by microbes:
  - Cholera
  - Tuberculosis
  - Malaria (by protozoa)
  - Flu (by virus)

**• Prevention and Hygiene**

- Wash hands before eating and after using the toilet.
- Store food in clean, covered containers.
- Drink boiled or filtered water.
- Clean your surroundings regularly.
- Use vaccination to protect from diseases.