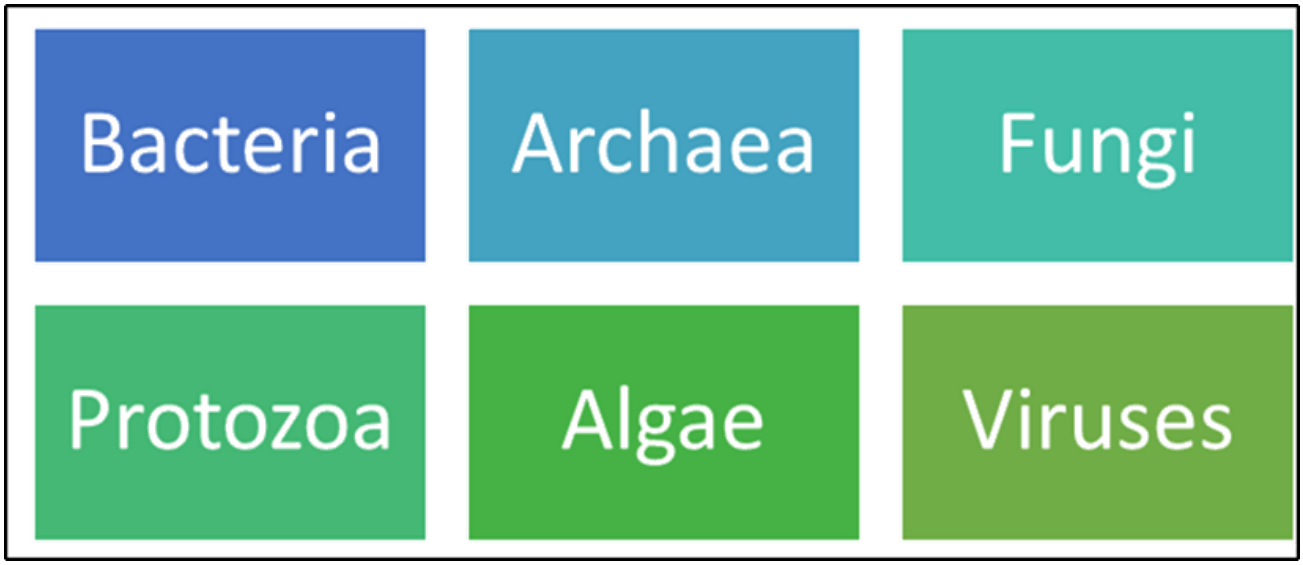
FlexiPrep

Microorganisms: Definition of Microorganisms, Types of Microorganisms (For CBSE, ICSE, IAS, NET, NRA 2022)

Definition of Microorganisms

- Those minute organisms that are invisible to the naked eye are called Microorganisms.
- A microorganism may exist either in single celled form or in a colony of cells.
- These organisms can be unicellular or multicellular.
- They are widespread in nature and are beneficial to life.
- Some of them are harmful as well.

Six Major Types of Microorganisms



Bacteria

- These are unicellular organisms.
- They exist in four major shapes:
  - Bacillus (rod shape)

- Coccus (spherical shape)
- Spirilla (spiral shape)
- Vibrio (curved shape)

- They can be classified as either Gram-positive or Gram-negative based on their cell wall structure.
- Classification based on the response to gaseous oxygen:
  - Aerobic (living in the presence of oxygen)
  - Anaerobic (living without oxygen

Archaea

- They differ from true bacteria in their cell wall structure and lack peptidoglycans.
- They are also known as Archaebacteria.
- Classification based on the habitats:
  - Methanogens (methane-producing organisms)
  - Halophiles (archaeans that live in salty environments)
  - Thermophiles (archaeans that live at extremely hot temperatures)
  - Psychrophiles (cold-temperature Archaeans)

Algae

- They are unicellular or multicellular eukaryotes.
- They are also called cyanobacteria or blue-green algae.
- They live in water, damp soil, and rocks.
- They are also responsible for producing oxygen and carbohydrates used by other organisms.

Protozoa

- They are unicellular eukaryotes.
- They have a nucleus, complex organelles.
- They are useful in mineralizing nutrients and making them available to the plants and other soil organisms.
- They feed on bacteria and regulate the bacterial population.

Viruses

- They consist of a nucleic acid core (DNA or RNA) surrounded by a protein coat.
- They are no cellular entities.
- They cannot reproduce outside a host cell.
- They cannot metabolize their own.

Useful Microorganisms

- These microorganisms help in the production of several food items, medicines, manufacturing, and research.
- Some of the useful microorganisms are Bacteria, Fungi, and Protozoa.
- They are a significant part of the ecosystem and participate in the production of minerals and gases like oxygen, carbon dioxide.
- They feed on the dead and decaying matters.
- One of the important examples is that of the biogeochemical cycle such as the nitrogen cycle.

- These organisms can be further used in various industries to produce various metabolites such as ethanol, riboflavin, lactic acid, and butanol.

Harmful Microorganisms

- These are the microorganisms responsible for food spoilage, diseases, and infections.
- Bacteria are one of the most harmful microorganisms responsible for several infectious diseases such as tuberculosis, cholera, etc.
- Fungi can cause skin infections and allergies.
- Viruses may cause AIDS, Influenza, etc.
- Microorganisms multiple on food and release toxic products causing food poisoning.

FAQs

Q 1. What is the simple definition of Microorganism?

Answer: Those minute organisms that are invisible to the naked eye are called Microorganisms.

Q 2. What are the six major types of microorganisms?

Answer: Six major types of microorganisms are namely Bacteria, Archaea, Fungi, Protozoa, Algae, and Viruses.

Q 3. What are the four major shapes into bacteria exist?

Answer: The four major shapes into which a bacterium exist are namely Bacillus (rod shape) , Coccus (spherical shape) , Spirilla (spiral shape) , and Vibrio (curved shape) .