

1. Can all living organisms be seen with the naked eye?
Answer: No, many living organisms are so tiny that they cannot be seen with the naked eye.
2. Where can tiny organisms be found?
Answer: Tiny organisms can be found in water, soil and even inside the human body.
3. What are microorganisms?
Answer: Microorganisms are very small living organisms that cannot be seen with the naked eye.
4. What is another name for microorganisms?
Answer: Microorganisms are also called **microbes**.
5. Which microorganisms are unicellular?
Answer: Bacteria and Amoeba are unicellular microorganisms.
6. Which microorganisms can be unicellular or multicellular?
Answer: Fungi and algae can be either unicellular or multicellular.
7. How do microorganisms affect humans?
Answer: Some microorganisms cause diseases, some cure them, some provide food and others spoil food.
8. What is microbiology?
Answer: Microbiology is the study of microorganisms.
9. What are scientists who study microorganisms called?
Answer: Scientists who study microorganisms are called microbiologists.
10. Where can microorganisms be found?
Answer: Microorganisms can be found in almost any kind of environment.
11. In what extreme places can microorganisms live?
Answer: They can live in the hottest deserts and the coldest icy polar regions.
12. Where do some microorganisms live on the sea floor?
Answer: Some microorganisms live in cracks in the sea floor.
13. Can microorganisms survive volcanic eruptions?
Answer: Yes, some microorganisms can survive volcanic eruptions.
14. In which places are microorganisms commonly found?
Answer: They are found in salt water, marshland and inside the bodies of plants and animals.
15. Why are microorganisms called hardy?
Answer: They are called hardy because they can survive in extreme conditions by forming a hard outer covering called cyst.
16. What is a cyst?
Answer: A cyst is a hard outer covering formed by microorganisms.
17. Why do microorganisms form a cyst?
Answer: They form a cyst when conditions are unfavourable, such as extreme temperature or dryness.
18. How do microorganisms survive inside a cyst?
Answer: They remain inactive inside the cyst until conditions become favourable again.
19. Into how many groups are microorganisms classified?
Answer: Microorganisms are classified into five groups.
20. What are the five groups of microorganisms?
Answer: The five groups are bacteria, algae, protozoa, fungi and viruses.
21. What is the singular form of bacteria?
Answer: The singular form of bacteria is bacterium.
22. What is the singular form of algae?
Answer: The singular form of algae is alga.

23. What is the singular form of protozoa?
Answer: The singular form of protozoa is protozoan.
24. What is the singular form of fungi?
Answer: The singular form of fungi is fungus.
25. What is the singular form of viruses?
Answer: The singular form of viruses is virus.
26. What are bacteria?
Answer: Bacteria are simple, unicellular living organisms.
27. Where are bacteria found?
Answer: They are found almost everywhere — in air, water, soil and in the bodies of other organisms, including humans.
28. How fast do bacteria multiply?
Answer: Bacteria grow and multiply very fast. One bacterium can divide into two bacteria in about 10–30 minutes.
29. How many bacteria are present in one gram of garden soil?
Answer: Nearly 2,50,00,00,000 bacteria are present in one gram of garden soil.
30. How do bacterial cells exist?
Answer: Bacterial cells may exist singly or cling together to form chains or groups.
31. In how many shapes are bacteria found?
Answer: Bacteria are found in three different shapes.
32. What are the three shapes of bacteria?
Answer: The three shapes are spherical (cocci), rod-shaped (bacilli) and spiral (spirilla).

Algae

Algae are simple plant-like organisms that have cell walls and chlorophyll within the cells. Algae can be unicellular or multicellular. They make their own food by photosynthesis. They have no true roots, stems or leaves.

Almost all algae live in water—in ponds, lakes and sea water. Some algae are found in snow and some in hot/springs. They also grow in moist soil, barks of trees and rock surfaces. THE INVISIBLE LIVING WORLD II- MICROORGANISMS 19

- a. Spirogyra (multicellular)-Algae growing in water and wet rock
- b. Chlamydomonas (unicellular)
- c. Fucus (multicellular)

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Fig. 2.3 Different types of algae

d. Laminaria, kelp (multicellular)

The green growth often seen in water and on the surface of wet rocks is algae.

Protozoa

Protozoa are unicellular organisms that have animal-like characteristics. They can move from place to place. They capture and eat food. Some protozoa live in fresh or salt water. Others live in soil. Some are parasites that live inside the bodies of other organisms, including humans, where they cause diseases. Amoeba, Giardia and Paramecium are some examples of protozoa (Fig. 2.4). Amoeba has

an irregular shape. Paramecium moves with the help of specialized structures.

Fungi

Fungi are plant-like organisms that do not contain chlorophyll. They may be unicellular or multicellular. Yeasts are unicellular, whereas bread mould is multicellular. Mushrooms are large multicellular fungi (Fig. 2.5). Fungi cannot make their own food. They are either

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a. Amoeba engulfing food

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b. Giardia

a. Penicillium (multicellular)

b. Yeast (unicellular)

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c. Paramecium

d. Trypanosoma

c. Agaricus, mushroom (multicellular)

d. Rhizopus, bread mould (multicellular)

Fig. 2.4 Some protozoa

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Fig. 2.5 Some fungi

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