

## MICROORGANISMS : FRIEND AND FOE

You have seen several kinds of plants and animals. However, there are other living organisms around us which we normally cannot see. These are called **microorganisms** or **microbes**. For example, you might have observed that during the rainy season moist bread gets spoilt and its surface gets covered with greyish white patches. Observe these patches through a magnifying glass. You will see tiny, black rounded structures. Do you know what these structures are and where do these come from?

### 2.1 Microorganisms

#### Activity 2.1

Collect some moist soil from the field in a beaker and add water to it. After the soil particles have settled down, observe a drop of water from the beaker under a microscope. What do you see ?

#### Activity 2.2

Take a few drops of water from a pond. Spread on a glass slide and observe through a microscope.

Do you find tiny organisms moving around?

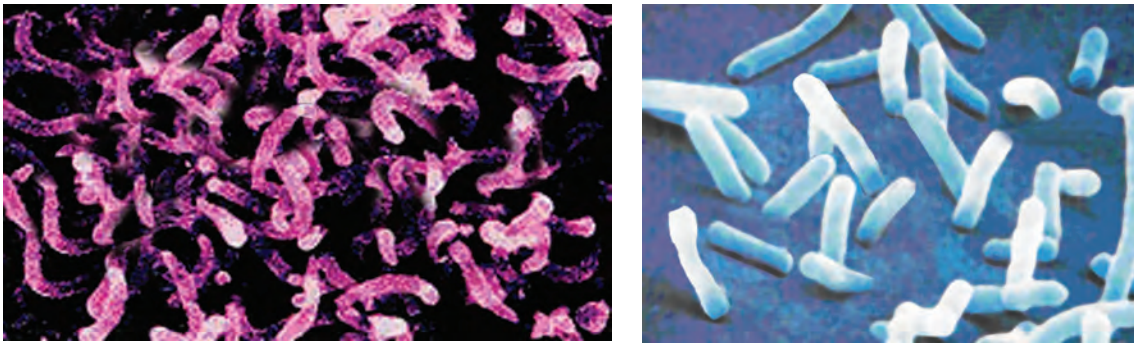
These observations show that water and soil are full of tiny organisms, though not all of them fall into the category of microbes. These microorganisms or microbes are so small in size that they cannot be seen with the unaided eye. Some of these, such as the fungus that grows on bread, can be seen with a magnifying glass. Others cannot be seen without the help of a microscope. That is why these are called microorganisms or microbes.

Microorganisms are classified into four major groups. These groups are **bacteria, fungi, protozoa** and some **algae**. Some of these common microorganisms are shown in Figs. 2.1 - 2.4.

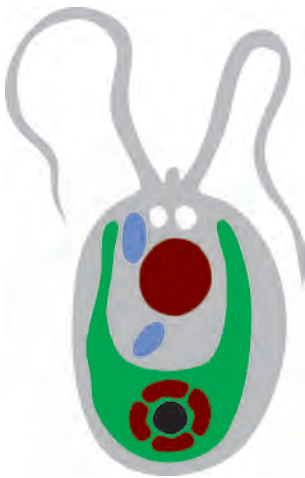
**Viruses** are also microscopic but are different from other microorganisms. They, however, reproduce only inside the cells of the host organism, which may be a bacterium, plant or animal. Some of the viruses are shown in Fig. 2.5. Common ailments like cold, influenza (flu) and most coughs are caused by viruses. Serious diseases like polio and chicken pox are also caused by viruses.

Diseases like dysentery and malaria are caused by protozoa(protozoans) whereas typhoid and tuberculosis (TB) are bacterial diseases.

You have learnt about some of these microorganisms in Classes VI and VII.



**Fig. 2.1:** Bacteria

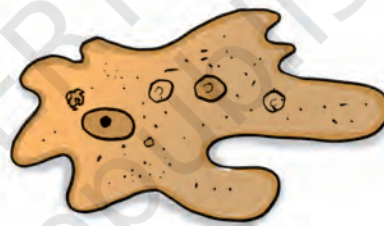


*Chlamydomonas*

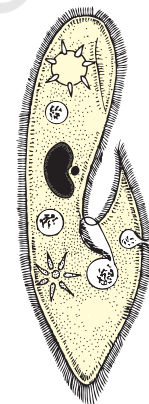


*Spirogyra*

**Fig. 2.2 :** Algae

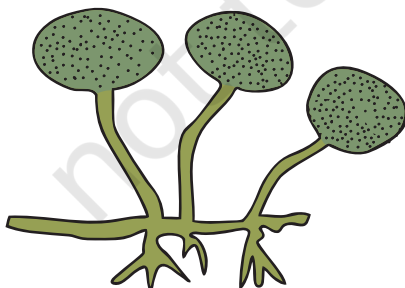


*Amoeba*

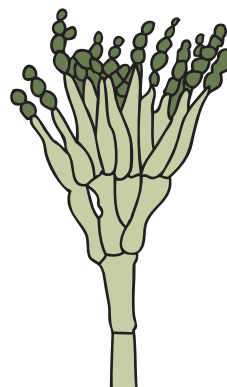


*Paramecium*

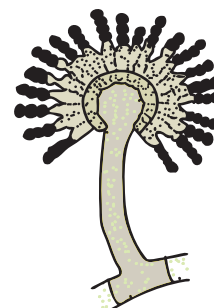
**Fig. 2.3 :** Protozoa



*Bread mould*



*Penicillium*



*Aspergillus*

**Fig. 2.4 :** Fungi