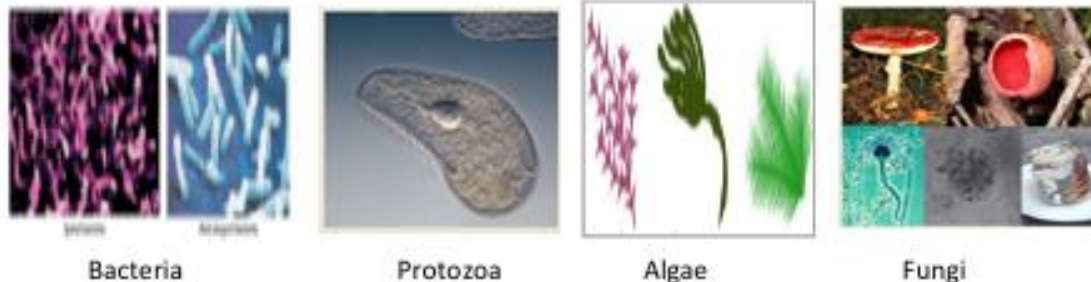


CHAPTER: MICRO-ORGANISMS: FRIEND AND FOE

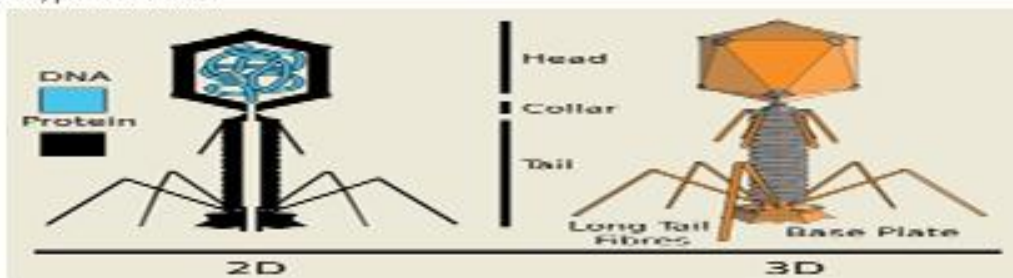
**Microorganisms:**

(i) Organisms which are too small to be seen by the naked eye, especially a single celled organism, are called microorganisms or microbes.

ii) Micro-organisms are classified into four major groups- Bacteria, Protozoa, Algae and Fungi



(iii) Viruses are also microscopic. They reproduce only inside the cells of the host organism, which may be a bacterium, plant or animal.



**Where do Microorganisms Live?**

- (i) Microorganisms may be single celled (bacteria, some algae and protozoa) or multi cellular (algae and fungi) can survive under all types of environment, ranging from ice cold climate to hot springs and deserts to marshy lands.
- (ii) They are also found inside the bodies of other organisms including humans.
- (iii) Growth of some microorganisms depends on other organisms while other organisms exist freely.
- (iv) Microorganisms like amoeba can live alone, while fungi and bacteria may live in colonies.

**Microorganisms and Us:**

Some of Microorganisms are beneficial in many ways while some others are harmful and cause diseases.

**Friendly Microorganisms:**

Microorganisms are used for various purposes

- a. Commercial Use.
- b. Medicinal Use.
- c. Vaccine.

- d. Increasing Soil Fertility.
- e. Cleaning the Environment.

**Harmful Microorganisms:**

- (i) Some of microorganisms are harmful in many ways.
- (ii) In human beings, plants and animals, some microorganisms cause diseases. Such disease-causing microorganisms are called pathogens.
- (iii) Food, clothing and leather are spoiled due to some harmful microorganisms.

**Disease-causing Microorganisms in Animals:**

Some microorganisms not only cause diseases in humans and plants, but also in other animals. For example: anthrax is an example of dangerous human and cattle disease caused by a bacterium. Foot and mouth disease of cattle is caused by a virus.

**Disease-causing Microorganisms in Plants:**

Some of microorganisms cause diseases in plants such as wheat, rice, potato, sugarcane, orange, apple and others. These diseases reduce the yield of crops. They can be controlled by the use of certain chemicals or pesticides which kill the microbes that affect the yield the crops.

**Food Poisoning:**

Food poisoning in humans is caused by consuming food spoilt by some microorganisms. Microorganisms that grow on our food produce toxic substances and make the food poisonous causing serious diseases. So, it is very important that we preserve food to prevent it from being spoilt by the microorganisms.

**Food Preservation:**

Microorganisms spoil our food. Spoiled food emits bad smell and has a bad taste and changed colour. Here are some common methods to preserve food in our homes:

- a. Chemical Method.
- b. Preservation by Common Salt.
- c. Preservation by Sugar.
- d. Preservation by Oil and Vinegar.
- e. Heat and Cold Treatments.
- f. Storage and Packing.

**Nitrogen Fixation:**

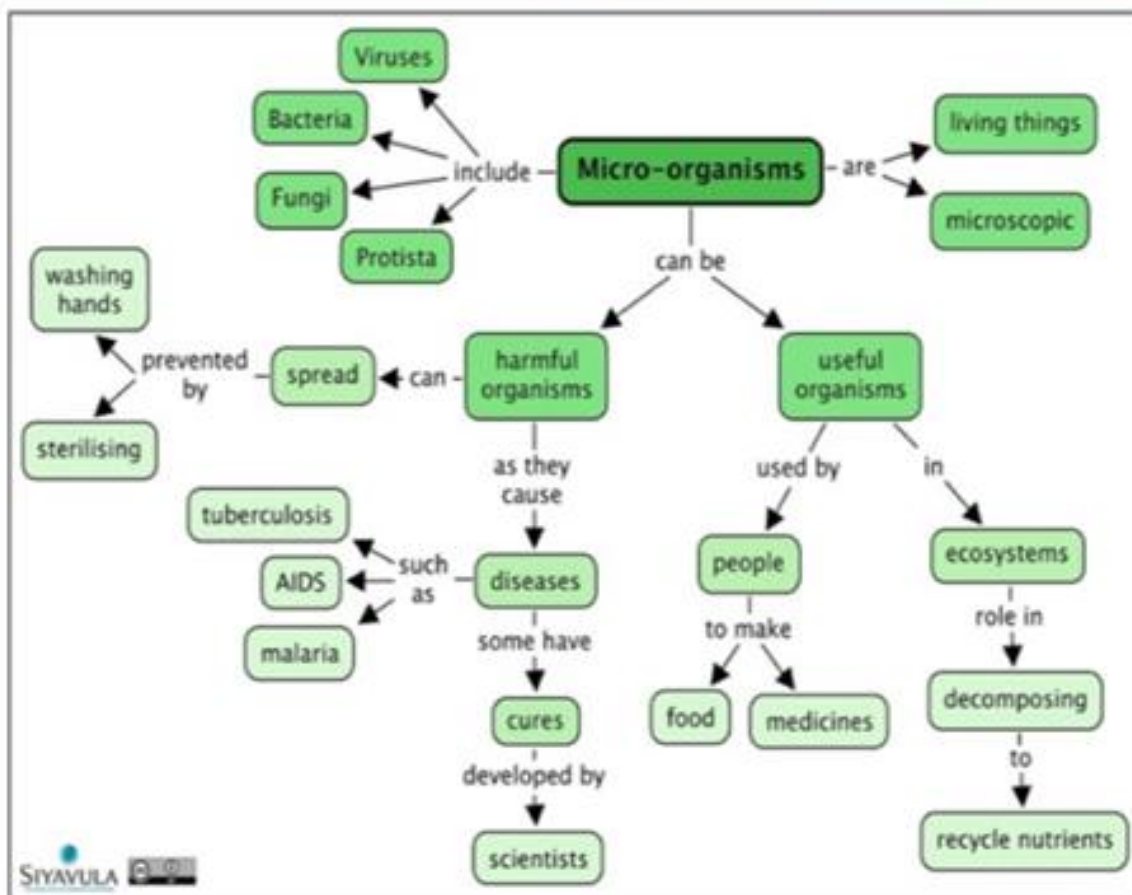
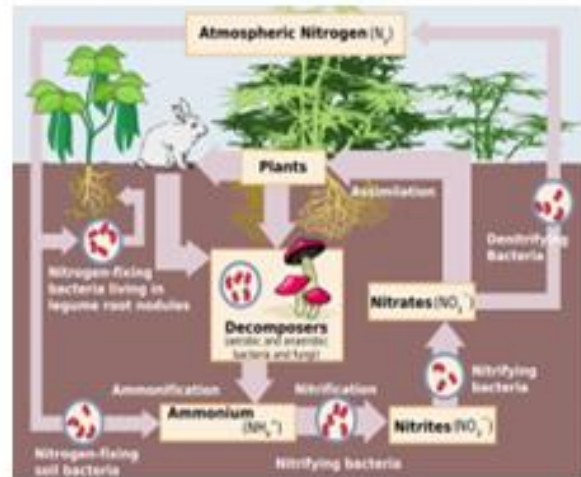
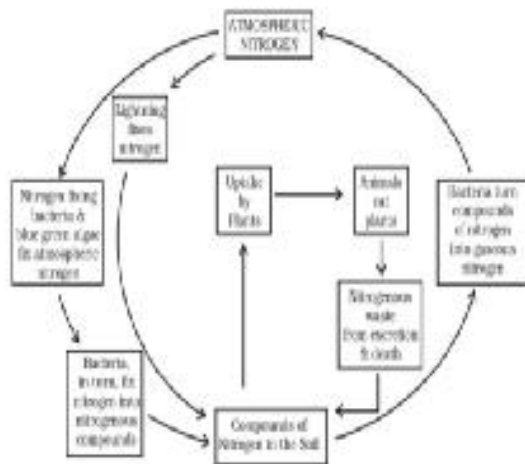
- (i) Rhizobium is involved in the fixation of nitrogen in leguminous plants (pulses).
- (ii) Nitrogen also gets fixed through the action of lightning. But the amount of nitrogen remains constant in the atmosphere.

**Nitrogen Cycle:**

- (i) Nitrogen is one of the essential constituents of all living organisms as part of proteins, chlorophyll, nucleic acids and vitamins, available 78% in our atmosphere. Bacteria and blue green algae present in the soil are used for fixing nitrogen from the atmosphere and then converting it into compounds of nitrogen.

(ii) After this, usable compounds can be utilised by plants from the soil through their root system. These compounds are then used for the synthesis of plant proteins and other compounds. Animals feeding on plants get these proteins and other nitrogen compounds.

(iii) When plants and animals die, bacteria and fungi present in the soil convert the nitrogenous wastes into nitrogenous compounds to be used by plants again. Certain other bacteria convert some part of them into nitrogen gas which goes back into the atmosphere. As a result, the percentage of nitrogen in the atmosphere remains more or less constant.



(Lesson Mapping)

## EVALUATION:

Q1. Define Micro-organisms?

Q2. Give uses of Micro-organisms?

Q3. List a few harmful effects of micro-organisms.

Q4. Fill in the blanks.

- a. Organisms which are too small to be seen with the naked eye are called \_\_\_\_\_.
- b. Micro-organisms are classified into \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ & \_\_\_\_\_.
- c. Food, clothing and leather are spoiled due to some \_\_\_\_\_ micro-organisms.
- d. \_\_\_\_\_ is involved in the fixation of nitrogen in leguminous plants.
- e. Disease causing micro-organisms are called \_\_\_\_\_.

Q5. Draw a Nitrogen Cycle.