

SUB - SCIENCE
CLASS - 8TH

Page No. 1
Date: / / 20

LESSON - 2 Microorganisms: Friend and Foe (NOTES)

1. Microorganisms: These are too small and are not visible to the unaided eye. They can live in all kind of environment ranging from ice cold climate to hot springs, desert and marshy lands.
2. Virus: These are quite different from other microorganisms. They reproduce only inside the host organisms which may be bacterium, plant or animal. Diseases like AIDS, Polio, Chicken pox, influenza (flu) and most coughs are caused by viruses.
3. Bacteria: These are the microorganism that produce in humans diseases like typhoid and tuberculosis.
4. Protozoa: They are the microorganisms that can cause serious diseases like dysentery and malaria.
5. Fermentation: The process of conversion of sugar into alcohol is known as fermentation.
6. Pathogens: Disease causing organisms are called pathogens.

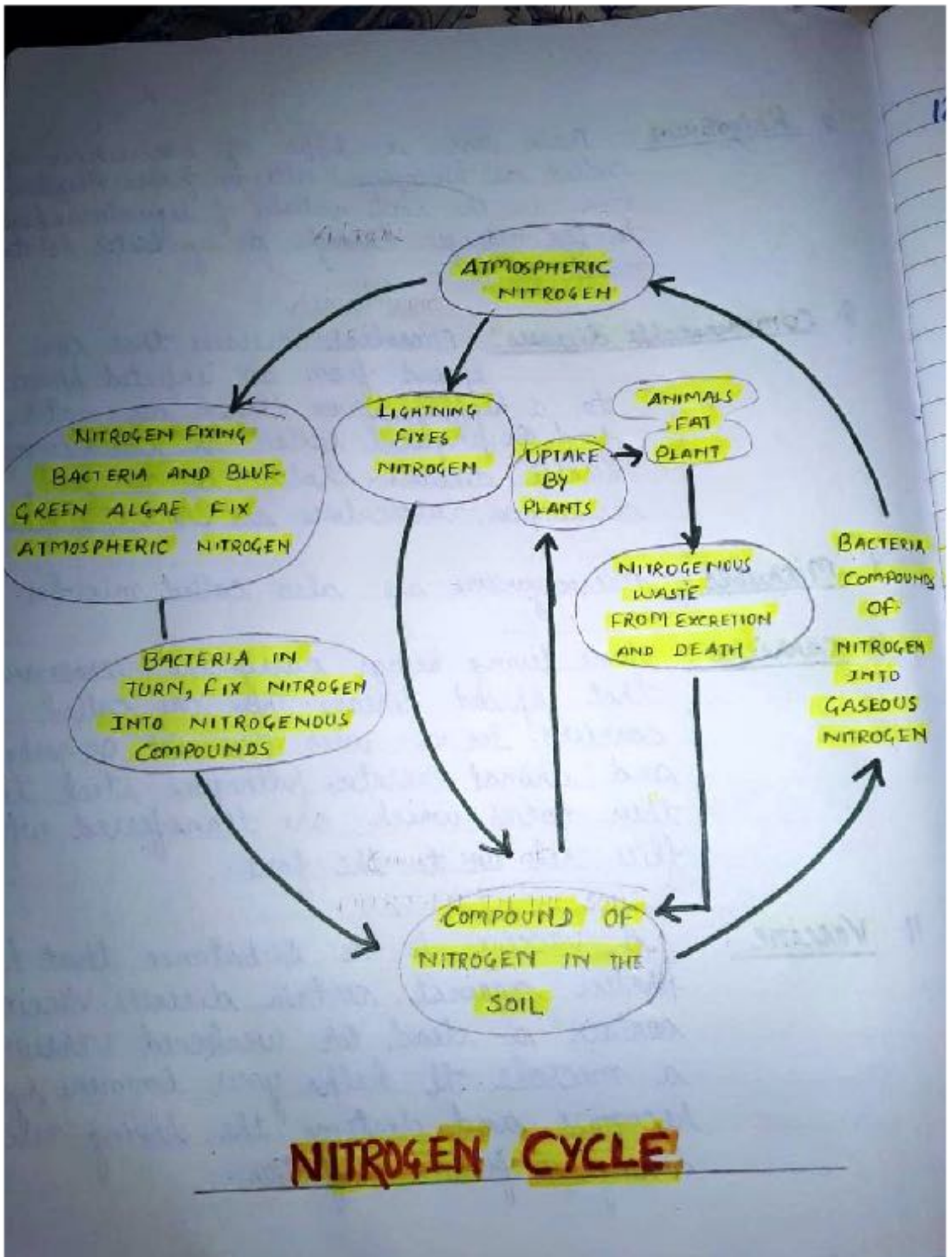
7. Rhizobium: These are a type of bacteria commonly called as biological nitrogen fixers. Rhizobium lives in the root nodules of leguminous plants to fix nitrogen through a symbiotic relationship.

8. Communicable diseases: Microbial diseases that can spread from an infected person to a healthy person through air, water, food or physical contact are called communicable diseases. Cholera, common cold, chickenpox, tuberculosis are some of diseases.

9. Microbes: Microorganisms are also called microbes.

10. carriers: Some living beings carry the microorganisms that spread diseases. They are called carriers. For ex- when flies sit on garbage and animal excreta, pathogens stick to their bodies which are transferred when flies sit on to the food.

11. Vaccine: A vaccine is a substance that helps protect against certain diseases. Vaccines contain a dead or weakened version of a microbe. It helps your immune system recognize and destroy the living microbe during a future infection.



12. Nitrogen fixation: Some bacteria and blue green algae are able to convert nitrogen from the atmosphere in its usable form to enrich soil with nitrogen and increase the fertility of soil. This process is called Nitrogen fixation.

13. Nitrogen cycle: Atmosphere consists of 78% of nitrogen gas which is one of the essential constituents of all living organisms. It cannot be taken directly by plants and animals. Nitrogen-fixing bacteria fix it to the soil taking it from atmosphere which is converted into usable forms. These are used by plants and animals. When they die, the bacteria and fungi present in the soil convert nitrites and nitrates of these animals into nitrogen which is released into the atmosphere. This is called nitrogen cycle.

14. Preservatives: Salts and edibles are the common chemicals generally used to check the growth of microorganisms. They are called preservatives.

15. Pasteurisation: When milk is heated to 70°C for 15 sec. and then suddenly chilled and stored, the growth of microbes in the milk is prevented. This process was discovered by Louis Pasteur, so it is called pasteurisation.

Ques/Ans

Ques. Fill in the blanks:

- (a) Microorganisms can be seen with the help of a microscope.
- (b) Blue-green algae fix nitrogen directly from air to enhance fertility of soil.
- (c) Alcohol is produced with the help of yeast.
- (d) Cholera is caused by bacteria.

Ques. Tick the correct answer:

- (a) Yeast is used in the production of
 - (i) Sugar
 - (ii) alcohol ✓
 - (iii) hydrochloric acid
 - (iv) Oxygen
- (b) The following is an antibiotic
 - (i) Sodium bicarbonate
 - (ii) Streptomycin ✓
 - (iii) Alcohol
 - (iv) Yeast
- (c) Carrier of malaria causing protozoan is
 - (i) Female Anopheles mosquito ✓
 - (ii) Cockroach
 - (iii) housefly
 - (iv) butterfly

(d) The most common carrier of communicable disease is

- (i) ant
- (ii) housefly ✓
- (iii) dragonfly
- (iv) spider

(e) The bread or idli dough rises because of

- (i) heat
- (ii) grinding
- (iii) growth of yeast cells ✓
- (iv) kneading

(f) The process of conversion of sugar into alcohol is called

- (i) nitrogen fixation
- (ii) moulding
- (iii) fermentation ✓
- (iv) infection

Q43. Match the organisms in column A with their action in column B.

ANS

A

B

- I Bacteria
- II Rhizobium
- III Lactobacillus
- IV Yeast
- V A protozoan
- VI A virus

- Cholera
- fixing nitrogen
- Setting of curd
- Baking of bread
- causes malaria
- causing AIDS/AIDS

Q44.

can microorganisms be seen with naked eye?
If not, how can they be seen?

ANS

No, we cannot see them with unaided eyes. They can be seen with the help of a microscope.

Q45

What are the major groups of microorganisms?

ANS

The major groups of microorganisms are:
(i) Bacteria (ii) fungi (iii) protozoa (iv) algae (v) viruses

Q46.

Name the microorganisms which can fix atmospheric nitrogen in the soil.

ANS

ANS

They are Rhizobium, blue green algae etc

Q47.

Write 10 lines on the usefulness of microorganisms in our lives.

ANS

The usefulness of microorganisms are as follows:

- (i) Lactobacillus, a bacterium is useful in formation of curd.
- (ii) Microorganisms like bacteria are also involved in the making of cheese, pickles etc.
- (iii) They are also used in cleaning up of environment.
- (iv) Bacteria are also used in agriculture to increase soil fertility by fixing nitrogen.

- (v) Microorganisms like yeast are used for the production of alcohol since ages.
- (vi) They are used to make vaccines.
- (vii) They are used to make antibiotics.
- (viii) Microorganisms are used to make manures.
- (ix) Some microorganisms are used to make manures.
- (x) About 50% of atmospheric carbon dioxide is fixed by microorganisms.

Q48

Write a short paragraph on the harms caused by microorganisms.

ANS

The harms caused by microorganisms are as follows.

- (i) Many communicable diseases such as cholera, common cold, chicken pox, tuberculosis etc are caused by microorganisms.
- (ii) Female Aedes mosquito acts as carrier of dengue virus.
- (iii) Malaria is caused by microorganism called Plasmodium carried by female Anopheles mosquito.
- (iv) Anthrax is a dangerous human and cattle disease caused by bacterium called Bacillus anthracis.
- (v) Several microorganisms cause diseases in plants like wheat, rice, potato, sugarcane, orange, apple and others and reduce the yield of the crops.
- (vi) Food poisoning is also caused by microorganism making food poisonous by producing toxic substance in the food.

Ques What are antibiotics? What precautions must be taken while taking antibiotics?

ANS The medicines that kill or stop the growth of the disease causing microorganisms are called antibiotics. Streptomycin, tetracycline, erythromycin etc are some of the common known antibiotics which are made from fungi and bacteria. They are manufactured by growing specific microorganisms and are used to cure a variety of diseases.

Precautions to be taken in using antibiotics are as follows:

- (i) These medicines should be taken only on the advice of a qualified doctor.
- (ii) One must finish the course prescribed by the doctor.
- (iii) If anybody takes antibiotics when not needed, his/her body may develop resistance against that antibiotics.