



पुर्ना International School
Shree Swaminarayan Gurukul, Zundal

Class - VIII

Science

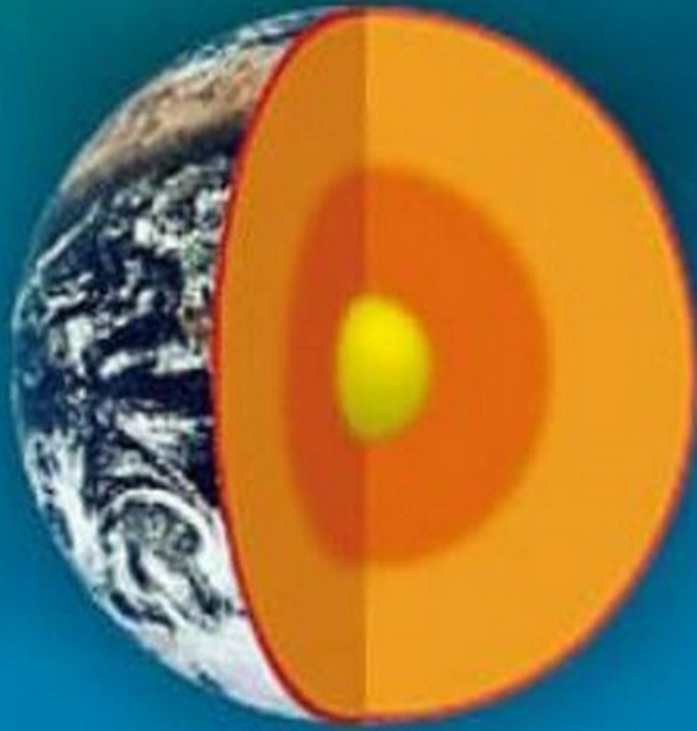
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Science

SCIENCE

Textbook for Class VIII

Class VIII



NCERT




Index

Sr.No	Chapter Name	Page.No
1	Crop Production and Management	1
2	Microorganisms: Friend and Foe	17
3	Synthetic Fibres and Plastics	32
4	Materials: Metals and Non-Metals	44
5	Coal and Petroleum	56
6	Combustion and Flame	64
7	Conservation of Plants And Animals	77
8	Cell- Structure and Functions	90
9	Reproduction In Animals	100

Chapter – 1

Crop Production and Management

❖ key words :-

1] Fertiliser: The inorganic compounds containing nutrients such as nitrogen, potassium and phosphorus. They are made in the factories. Example: Urea, ammonium sulphate, potash, etc.

2] Manure: A natural substance prepared from decomposition of plant and animal wastes (cow dung, animal bones, dead leaves, dead insects and vegetable wastes) by the action of microbes.

3] Irrigation : Supply of water to crops at appropriate intervals is called irrigation.

Method of Irrigation:

(a) Tradition methods of Irrigation: Moat, Chain pump, Dheki, Rahat.

(b) Modern methods of Irrigation: Sprinkler system, Drip system.

4] Harvesting: Harvesting is the cutting of the mature crop manually or by machines.

❖ Extra Questions:-

❖ Very short Answer Questions

1. Pick out the odd one from the following words given in the box and give reason for it.

Plough, Seed Drill, Hoe, Chain Pump, Sickle

Ans. Seed drill, because it is a modern agricultural implement unlike the others which are all traditional tools.

2. If you are given a dry piece of land for cultivation what will you do before sowing the seeds?

Ans. The field will be watered, tilled and ploughed before sowing seeds because seed require moisturous environment.

3. Name the tool used with a tractor for sowing seeds in a field.

Ans. Seed drill.

4. Name the practice followed for large scale rearing of farm animals.

Ans. Animal husbandry.

❖ **Short Answer Questions:-**

1. Which activity of the farmer can promote growth of earthworms and microbes in the field?

Ans. Loosening the soil/maintaining high moisture levels in soil.

Addition of manure

Plowing is a farming execute utilized for cutting, lifting, turning over, and partly pummeling soil.

2. During which months do farmers grow mustard in India?

Ans. Seed of mustard germinates at a low soil temperature of $40^{\circ}F$. Therefore, cultivation of mustard is done during winter season which ranges in our country from October to March.

3. What are organic foods?

Ans. Organic foods refers to those food stuffs that are produced without the use of any synthetic method including use of pesticides, fertilisers, sewage sludge .

organic foods are also usually not processed using irradiation, industrial solvents or synthetic food additives.

Organic animal food products like meat, poultry, eggs, and dairy products are obtained from animals without the use of any antibiotics or growth hormones.



Fig. Packed Organic Food

❖ **Long Answer Questions:-**

1. As a part of eco-club activity students were asked to raise a kitchen garden in the school premises. They were provided with some materials given in the box. List the other materials you would require. How will you plan the garden? Write the steps.

khurpi, water-can, spade, shovel

Ans. The following items are required – seeds and seedlings of vegetable plants from nursery, kitchen waste, water.

Steps for raising the garden:

1. Kitchen waste will be collected and composted in a pit.
2. A patch of land will be identified for the garden.
3. Soil will be dug up and levelled with the help of a spade.
4. Sowing of seeds / transplanting of seedlings.
5. Select seeds/seedlings as per the season. Water the plants regularly with a water-can.
6. Compost will be applied.
7. Weeds will be removed periodically with the help of Khurpi.

Exercises:-

1. Select the correct word from the following list and fill the blanks.

float, water, crop, nutrients, preparation

(a) The same kind of plants grown and cultivated on a large scale at a place is called _.

(b) The first step before growing crop is _____ of soil.

(c) Damaged seeds would _____ on top of water.

(d) For growing crop, sufficient sunlight and _____ and _____ and from the soil are essential.

Ans. Select the correct word from the following list and fill the blanks.

Float, water, crop, nutrients, preparation

- (a) The same kind of plants grown and cultivated on a large scale at a place is called crop.
- (b) The first step before growing crop is preparation of soil.
- (c) Damaged seeds would float on top of water.
- (d) For growing crop, sufficient sunlight and water and nutrients from the soil are essential.

2. Match items in column A with those in column B.

A	B
(i) Kharif crop	(a) Food for cattle
(ii) Rabi crops	(b) Urea and super phosphate
(iii) Chemical fertilisers	(c) Animal excreta, cow dung, urine and Plant wastes.
(iv) Organic manure	(d) Wheat, gram, pea
	(e) Paddy and maize.

Ans. AB

A	B
(i)	(e)
(ii)	(d)
(iii)	(b)
(iv)	(c)

3. Give two examples of each.

- (a) Kharif crop
 (b) Rabi crop

Ans. (a) Paddy and maize.
 (b) Wheat and pea.

4. Write a paragraph in your own words on each of the following.

- (a) Preparation of soil (b) Sowing (c) Weeding (d) Threshing

Ans. (a) Preparation of soil:- It is the first step before growing a crop. One of the most important tasks in agriculture is to turn the soil and loosen it. The softening of soil allows the deep penetration of roots into soil. The soil preparation includes ploughing, levelling and manuring. Ploughing is done with the help of plough or tractor. Levelling is done by leveller to break the crumbs with a plank..

(b) Sowing: - The process of broadcasting seeds in soil to grow crop is called sowing. Sowing is done with the help of seed drill or traditional tool. The healthy

seed is selected for proper growth. The distance between seeds must be sufficient for proper growth.

(c) Weeding: - The unwanted plants that grow along with the main crop and compete with crop for light, food and other substance are called weeds. Removal of these unwanted plants is called weeding. Weeding is done by different ways which include manual removal, seed drill and weedicides.

(d) Threshing: - In harvested crop, the grain seeds are separated from chaff. This process is called threshing. This is carried out by using a machine called "Combine".

5. Explain how fertilisers are different from manure.

Ans. Manure is an organic substance obtained from the decomposition of plant or animal wastes but fertilisers are inorganic substance prepared in factories. Fertilisers are rich in nutrients but manure has relatively less nutrients. Manure do not harm the soil if used in greater quantity but fertilisers may harm the plants as well as soil. Manure is cheap and mostly prepared by farmers itself on the other hand fertilisers are costly and prepared in factories using chemicals.

6. What is irrigation? Describe two methods of irrigation which conserve water.

Ans. The supply of water to crops at different intervals is called irrigation. The time and frequency of irrigation differ from crop to crop, soil to soil and season to season. The main sources of irrigation are wells, tube wells, ponds, lakes, rivers, dams and canals. Irrigation is essential for proper growth of plants as without water no physiological activity is possible in living beings. The two methods of irrigation which conserve water are-

(a) Sprinkler system- This system is useful in uneven land where sufficient water is not available. The perpendicular pipes having rotating nozzles on top are joined to the main pipeline at regular intervals. When water flows through this pipe at high pressure, it escapes through the nozzles and sprinkle in all directions.

(b) Drip system- In this system water falls drop by drop just at the position of roots. It is mainly used for watering fruit plants, gardens and trees. In this method water is not wasted at all. It is mainly used in water deficient areas.

7. If wheat is sown in the Kharif season. What would happen? Discuss.

Ans. Kharif crops need lot of rainfall, whereas wheat needs winter season and not heavy rainfall. So, if wheat were sown in Kharif season, the crops will get damaged due to heavy rainfall and water logging in the field.

8. Explain how soil gets affected by the continuous plantation of crop in a field.
Ans. Continuous growing of crops makes the soil poorer in certain nutrients. To avoid this, a method of crop-rotation is adopted, which maintains the nutrients of the soil intact.

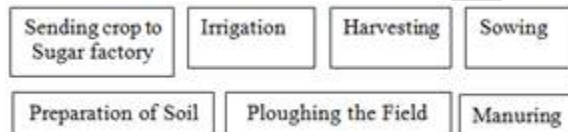
9. What are weeds? How can we control them?

Ans. The undesirable plants in the field are called weeds. These have to be removed, otherwise our own crop plants may not get sufficient water, nutrients, space and light. So, they are removed either by manual method or by using weedicides.

The manual removal includes physical removal of weeds by uprooting or cutting them close to the ground from time to time. This is done with the help of a khurpi or harrow.

By using weedicides also, we can remove weeds. These weedicides only damage weeds and do not harm crops.

10. Arrange the following boxes in proper order to make a flow chart of sugarcane crop production.



Ans.



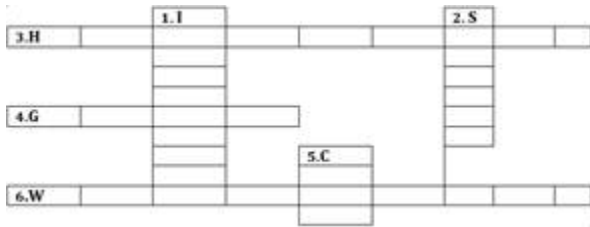
11. Complete the following words puzzle with the help of clues given below.

DOWN

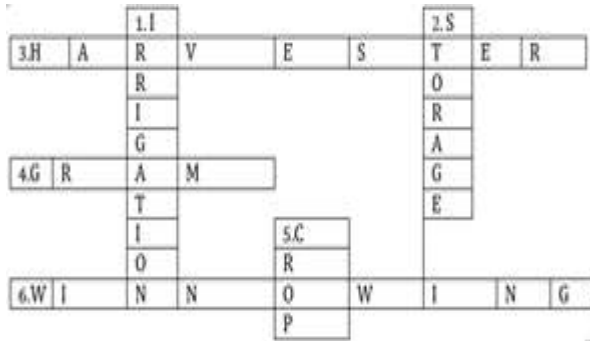
1. Providing water to the crops.
2. Keeping crop grains for a long time under proper conditions.
5. Certain plants of the same kind grown on a large scale.

ACROSS

3. A machine used for cutting the matured crop.
4. A rabi crop that is also one of the pulses.
6. A process of separating the grain from chaff.



Ans.



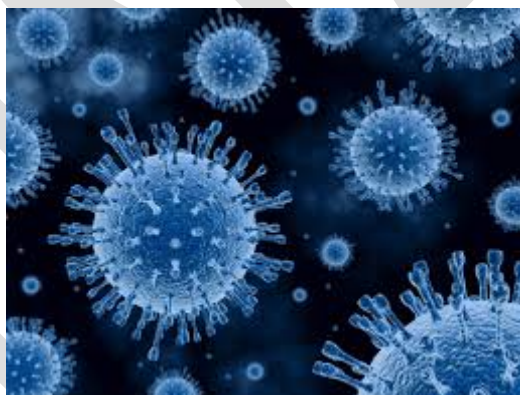
PUMMA

Chapter – 2 Micro-organisms: Friend and Foe

❖ key words :-

1. microorganism :-A **microorganism** or **microbe** is an organism that is so small that it is microscopic (invisible to the naked eye). **Microorganisms** are often illustrated using single-celled, or unicellular organisms; however, some unicellular protists are visible to the naked eye, and some multicellular species are microscopic.

2. virus :-A **virus** is a small infectious agent that replicates only inside the living cells of an organism. **Viruses** can infect all types of life forms, from animals and plants to microorganisms, including bacteria and archaea.



3. Antibodies:- **Antibodies** (also called immunoglobulins) are large Y-shaped proteins. They are found in the blood or other body fluids of vertebrates. They are the key element in the adaptive immune system. The **antibody** recognizes a unique part of the foreign target called an antigen.

❖ Extra Questions:-

❖ Very short Answer Questions:-

1. Name one commercial use of yeast.

Ans. Making bread.

2. Name the process in yeast that converts sugars into alcohol.

Ans. Fermentation

3. In the soil, which nutrient is enriched by blue-green algae (cyanobacteria)?

Ans. Nitrogen

4. Why should we avoid standing close to a tuberculosis patient while he/she is coughing?

Ans. Tuberculosis is an air-borne disease which easily spreads when the infected person coughs.

❖ **Short Answer Questions:-**

1. Name two diseases that are caused by virus.

Ans. Polio and Chicken pox

2. Write one important characteristic of virus.

Ans. Virus can reproduce only inside the cells of a living cell.

3. Match the microorganisms given in the Column A to the group to which they belong in Column B.

Column A	Column B
(a) Lactobacillus	(i) Algae
(b) Aspergillus	(ii) Protozoa
(c) Spirogyra	(iii) Fungi
(d) Paramecium	(iv) Bacteria

Ans. (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)

❖ **Long Answer Questions:-**

1. How can we prevent the following diseases?

- (a) Cholera**
- (b) Typhoid**
- (c) Hepatitis A**

Ans. (a) Cholera: By drinking boiled water, cooking food well, eating covered food and keeping our surroundings clean.

(b) Typhoid: Eating properly cooked food, drinking boiled food, getting vaccinated against the disease.

(c) Hepatitis A: Drinking boiled water, washing hands thoroughly after using rest room and getting vaccinated against the disease.

2. Complete the following cycle given as Fig. by filling the blanks (a), (b), (c) (d)

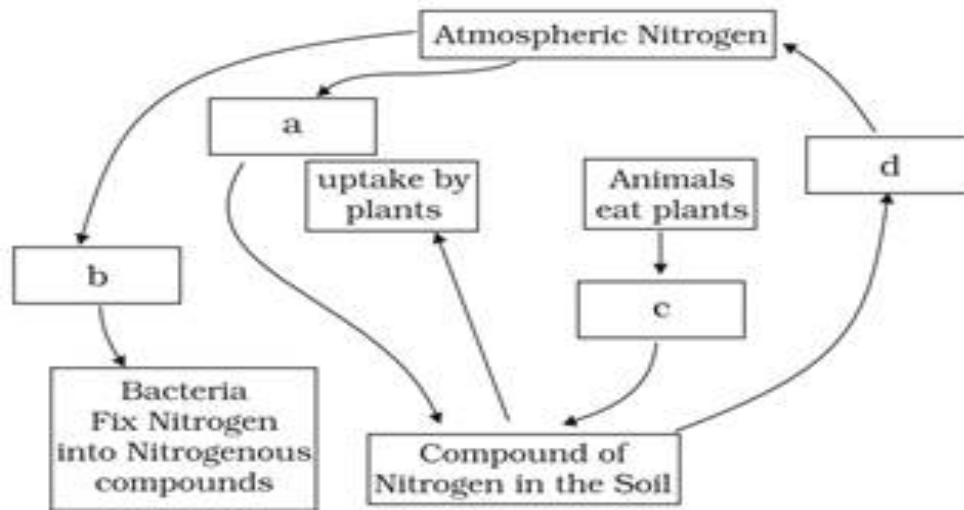


Fig. 2.4

Ans.(a) Lightning fixes nitrogen.

(b) Nitrogen fixing bacteria and blue green algae fix atmospheric nitrogen.

(c) Nitrogenous waste from excretion and death.

(d) Bacteria turn compounds of nitrogen into gaseous nitrogen.

Exercises:-

1. Fill in the blanks.

(a) Microorganisms can be seen with the help of a _____.

(b) Blue-green algae fix _____ directly from air to enhance fertility of soil.

(c) Alcohol is produced with the help of _____.

(d) Cholera is caused by _____.

Ans. 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 a bacteria.

2. Tick the correct answer.

(a) Yeast is used in the production of

- | | |
|--------------|-------------------------|
| (i) Sugar | (iii) hydrochloric acid |
| (ii) alcohol | (iv) oxygen |

(b) The following is an antibiotic

- | | |
|------------------------|---------------|
| (i) Sodium bicarbonate | (iii) Alcohol |
| (ii) Streptomycin | (iv) Yeast |

(c) Carrier of malaria-causing protozoan is

- | | |
|-------------------------------|----------------|
| (i) Female Anopheles mosquito | (iii) housefly |
| (ii) cockroach | (iv) butterfly |

(d) The most common carrier of communicable diseases is

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

(e) The bread or idli dough rises because of

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

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

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

Ans. (a) (ii) alcohol.

(b) (ii) Streptomycin

(c) (i) female anopheles mosquito

(d) (ii) housefly

(e) (iii) growth of yeast cells

(f) (iii) fermentation.

3. Match the organisms in Column A with their action in Column B.

A	B
(i) Bacteria	(a) Fixing nitrogen
(ii) Rhizobium	(b) Setting curd
(iii) Lactobacillus	(c) Baking bread
(iv) Yeast	(d) Causing malaria
(v) A protozoan	(e) Causing cholera
(vi) A virus	(f) Causing AIDS
	(g) Producing antibodies

Ans. Match the following:-

Column A	Column B
(i) Bacteria	(e) Causing cholera
(ii) Rhizobium	(a) Fixing nitrogen
(iii) Lactobacillus	(b) Setting curd
(iv) Yeast	(c) Baking bread
(v) A protozoan	(d) Causing malaria
(vi) A virus	(f) Causing AIDS

4. Can microorganisms be seen with the naked eyes? If not, how can they be seen?

Ans. Microorganisms are too small so they cannot be seen with naked eye. They can be seen with the help of a magnifying glass or microscope.

5. What are the major groups of microorganisms?

Ans. The major groups of microorganisms are:

- **Bacteria:** They are single celled disease causing microorganisms. They can be spiral or rodshaped.
- **Fungi:** They are mostly multicellular disease causing microbes. Bread moulds are common examples of fungi.
- **Protozoa:** They mainly include organisms such as Amoeba, Plasmodium, etc. They can be unicellular or multicellular.
- **Virus:** Viruses are disease causing microbes that reproduce only inside the host organism.
- **Algae:** They include multicellular, photosynthetic organisms such as Spirogyra, Chlamydomonas, etc.

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

Ans. The microorganisms which can fix atmospheric nitrogen are Rhizobium, Azotobactor, Blue green algae etc.

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

Ans. The usefulness of microorganisms are as follows:

- Lactobacillus is used to form curd from milk.
- Rhizobium present in the roots of pulse plants fix nitrogen from air and supply nitrogen compounds to the pulse plants.
- Microorganisms are also used in winemaking, baking, pickling, and other food making processes.
- Alcoholic fermentation by yeast is widely used in the preparation of wine and bread.
- Microbes are used to reduce pollution. For example, decomposers such as bacteria and fungi break down dead bodies and excreta to form inorganic compounds, which can be absorbed by plants.

- Microbes also play an important role in the preparation of medicines. Antibiotics are chemicals produced by microorganisms to kill bacteria. Penicillin is an antibiotic made from *Penicilium*.
- Bacteria present in our intestine helps in proper digestion and release Vitamin B which is absorbed by intestine.
- Many vaccines are prepared from microorganisms. These vaccines are given to children to protect them from disease.
- Certain microbes are also used in the biological treatment of sewage and industrial effluents.
- Yeast is used in making idlis, bread, pastries and cakes.

8. Write a short paragraph on the harms caused by microorganisms?

Ans. Microorganisms cause diseases in animals. For example, in humans, bacteria cause diseases such as tuberculosis, cholera, typhoid, etc. In cattle, the foot and mouth

disease is caused by a virus. Also, several microbes cause diseases in plants. For example, the productivity of wheat, orange, apple, etc. is reduced due to microbial diseases in plants. Certain microbes, on entering into our body, produce toxic substances. This leads to food poisoning. Some microorganisms such as fungus spoil our food. For example, bread when left unused under moist conditions gets spoilt by fungus, producing a white cottonlike growth on the bread.

9. What are antibiotics? What precautions must be taken while taking antibiotics?

Ans. The medicines that kill or stop the growth of the disease-causing microorganism are called antibiotic. Streptomycin, tetracycline, erythromycin etc. are common antibiotics. They are manufactured by growing specific micro-organisms and are used to cure a variety of diseases.

Following precautions must be taken in using antibiotics-

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