

Crop Production and Microorganisms

Science · Class 8 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Study every diagram and table carefully.

Section A — Scientific Reasoning

Q1–Q8 · 1 mark each

- Crops sown in the rainy season and harvested in autumn are called _____.
 (A) Rabi (B) Cash
 (C) Zaid (D) Kharif
- The loosening and turning of soil before sowing is called _____.
 (A) Ploughing (B) Levelling
 (C) Weeding (D) Threshing
- Unwanted plants growing along with a crop are called _____.
 (A) Seedlings (B) Weeds
 (C) Fertilisers (D) Pests
- Which of these is a **natural** manure rather than a chemical fertiliser?
 (A) Urea (B) Ammonium sulphate
 (C) Compost (D) Superphosphate
- Which microorganism is used to make curd from milk?
 (A) Yeast (B) Rhizobium
 (C) Penicillium (D) Lactobacillus
- Yeast is used in baking because during respiration it produces _____.
 (A) Carbon dioxide, which makes dough rise (B) Oxygen, which makes dough rise
 (C) Nitrogen, which softens dough (D) Water only
- Which disease is caused by a **virus**?
 (A) Typhoid (B) Common cold
 (C) Malaria (D) Ringworm
- The bacterium **Rhizobium** in the root nodules of leguminous plants _____.
 (A) Causes root rot (B) Absorbs water from soil
 (C) Fixes atmospheric nitrogen into a usable form (D) Destroys weeds

9. In the table below, which row is **incorrectly** matched?

Row	Disease	Caused by
(A)	Malaria	Protozoan
(B)	Tuberculosis	Bacterium
(C)	Polio	Fungus
(D)	Ringworm	Fungus

Table 9.1 — Diseases and their causes

- (A) Row (A)
- (B) Row (B)
- (C) Row (C)
- (D) Row (D)

10. Why is crop rotation with a leguminous crop useful to a farmer?

- (A) It kills all the weeds
- (B) It makes the next crop grow taller only
- (C) It makes the soil drier
- (D) The legume's root nodules restore nitrogen to the soil, so less fertiliser is needed

11. Milk is pasteurised by heating it to about 70 °C and then chilling it suddenly. Why?

- (A) To kill most microbes without spoiling the taste, so the milk keeps longer
- (B) To make the milk sweeter
- (C) To remove all the fat
- (D) To turn it into curd

12. Food kept in a refrigerator stays fresh longer because low temperature _____.

- (A) Kills all microbes instantly
- (B) Slows down the growth and multiplication of microbes
- (C) Removes water from the food
- (D) Adds preservatives to the food

13. Which of these is the correct sequence of steps in growing a crop?

- (A) Ploughing → sowing → irrigation → harvesting → storage
- (B) Sowing → ploughing → harvesting → irrigation → storage
- (C) Harvesting → sowing → ploughing → storage
- (D) Irrigation → harvesting → sowing → ploughing

14. Why is excessive use of chemical fertilisers harmful?

- (A) It makes crops grow too fast
- (B) It makes the soil too dark
- (C) It damages soil fertility over time and the run-off pollutes rivers and groundwater
- (D) It attracts more earthworms

15. Grain to be stored for months is first **dried** thoroughly. Why?

- (A) To make it lighter to carry
- (B) To make it germinate faster
- (C) To make it taste better
- (D) Because microbes and moulds need moisture to grow, so dry grain does not spoil

16. Consider the following statements.

- (i) All microorganisms are harmful.
- (ii) Antibiotics are effective against bacteria but not against viruses.
- (iii) Vaccination protects a person by making the body produce antibodies in advance.

Which of the statements is/are correct?

- (A) (i) and (ii) only
- (B) (ii) and (iii) only
- (C) (i) and (iii) only
- (D) All three

17. Two identical samples of boiled milk are left out for a day. Sample X is kept at room temperature and sample Y in a refrigerator. X curdles and Y does not. What does this show?

- (A) Microbial growth depends on temperature, and warmth speeds it up
- (B) Boiling has no effect on milk
- (C) Refrigeration kills all bacteria
- (D) Milk curdles only when boiled

18. Match each microorganism in Column I with its use or effect in Column II.

Column I	Column II
(P) Yeast	(1) Fixes nitrogen in root nodules
(Q) Rhizobium	(2) Source of the antibiotic penicillin
(R) Penicillium	(3) Causes malaria
(S) Plasmodium	(4) Used in baking and brewing

Table 18.1

- (A) P-1, Q-4, R-3, S-2
- (B) P-4, Q-1, R-2, S-3
- (C) P-4, Q-2, R-1, S-3
- (D) P-2, Q-1, R-4, S-3

Answer Key

1	D	2	A	3	B	4	C	5	D
6	A	7	B	8	C	9	C	10	D
11	A	12	B	13	A	14	C	15	D
16	B	17	A	18	B				

Solutions

1. Answer: (D) Kharif

Kharif crops are sown with the monsoon in June–July and harvested in September–October. Paddy, maize and cotton are kharif crops; wheat and gram are rabi crops.

2. Answer: (A) Ploughing

Ploughing (or tilling) loosens and turns the soil, letting roots penetrate easily, bringing nutrients to the surface and allowing air to reach the roots.

3. Answer: (B) Weeds

Weeds compete with the crop for water, nutrients, light and space, so they reduce the yield. Removing them is called weeding.

4. Answer: (C) Compost

Compost is made from decayed plant and animal waste, so it is a natural manure. It adds humus and improves soil structure, which chemical fertilisers do not.

5. Answer: (D) Lactobacillus

The bacterium **Lactobacillus** converts the milk sugar into lactic acid, which sets the milk into curd.

6. Answer: (A) Carbon dioxide, which makes dough rise

Yeast respire anaerobically, producing alcohol and **carbon dioxide**. The gas is trapped as bubbles in the dough, making it rise and giving bread its spongy texture.

7. Answer: (B) Common cold

The **common cold** is caused by a virus. Typhoid is bacterial, malaria is caused by a protozoan and ringworm by a fungus.

8. Answer: (C) Fixes atmospheric nitrogen into a usable form

Rhizobium **fixes atmospheric nitrogen** into compounds the plant can absorb, while the plant supplies it with food and shelter. This is why growing pulses enriches the soil.

9. Answer: (C) Row (C)

Polio is caused by a **virus**, not a fungus, and is prevented by vaccination. The other three rows are correct.

10. Answer: (D) The legume's root nodules restore nitrogen to the soil, so less fertiliser is needed

Cereals steadily use up soil nitrogen. Growing a legume in between means **its Rhizobium-filled root nodules fix atmospheric nitrogen and restore it to the soil**, so the next crop needs far less nitrogen fertiliser.

11. Answer: (A) To kill most microbes without spoiling the taste, so the milk keeps longer

Pasteurisation **kills most of the microbes that would spoil the milk or cause disease, without boiling it and spoiling the taste**. Sudden chilling stops any survivors from multiplying.

12. Answer: (B) Slows down the growth and multiplication of microbes

Cold does not kill microbes but **slows their growth and multiplication** greatly, so spoilage takes much longer. This is why food eventually spoils even in a fridge, and why frozen food keeps longest.

13. Answer: (A) Ploughing → sowing → irrigation → harvesting → storage

The soil is first prepared by **ploughing**, then the seeds are **sown**, the crop is **irrigated** and cared for as it grows, then **harvested** and finally **stored** safely.

14. Answer: (C) It damages soil fertility over time and the run-off pollutes rivers and groundwater

Chemical fertilisers add nutrients but no humus, so over time the **soil structure and fertility deteriorate**. Rain also washes the excess into rivers and groundwater, where it causes algal blooms and contaminates drinking water.

15. Answer: (D) Because microbes and moulds need moisture to grow, so dry grain does not spoil

Microbes and moulds need moisture to grow. Thorough drying removes the water they need, so the grain can be stored for months without spoiling. Drying is one of the oldest methods of food preservation.

16. Answer: (B) (ii) and (iii) only

Statement (i) is false — many microbes are useful, such as *Lactobacillus* in curd, yeast in baking and *Rhizobium* in soil. Statements (ii) and (iii) are both true, which is why antibiotics should never be taken for a common cold. Hence **(ii) and (iii)**.

17. Answer: (A) Microbial growth depends on temperature, and warmth speeds it up

Both samples were treated identically except for temperature, so the temperature must explain the difference. Bacteria that entered after boiling multiplied quickly in the warm sample and slowly in the cold one, showing that **microbial growth depends on temperature and warmth speeds it up**. Refrigeration only slows the microbes; it does not kill them.

18. Answer: (B) P-4, Q-1, R-2, S-3

Yeast is **used in baking and brewing** (4). *Rhizobium* **fixes nitrogen in root nodules** (1). *Penicillium* is the mould that gave us **penicillin** (2). *Plasmodium* is the protozoan that **causes malaria** (3). Hence P-4, Q-1, R-2, S-3.