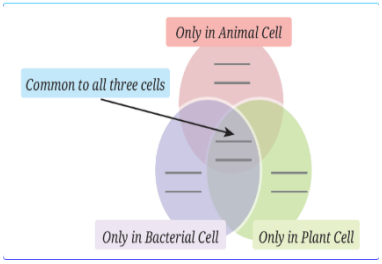
INDIAN SCHOOL AL WADI AL KABIR		
CLASS: VIII	**DEPARTMENT: SCIENCE** **2026-27**	**DATE: 06/05/2026**
TEXTBOOK Q & A	**TOPIC: THE INVISIBLE LIVING WORLD: BEYOND OUR NAKED EYE**	**NOTE: A4 FILE FORMAT**
CLASS & SECTION:	**NAME OF THE STUDENT:**	**ROLL NO.**

1. Various parts of a cell are given below. Write them in the appropriate places in the following diagram.



Nucleus Cytoplasm
Chloroplast Cell wall
Cell membrane Nucleoid

[Ans: Common to all cells (animal, plant, bacterial): Cell membrane, cytoplasm
Only in animal cells: Nucleus
Only in plant cells: Cell wall, Nucleus, chloroplast
Only in bacterial cells: Cell wall, nucleoid]

2. Aanandi took two test tubes and marked them A and B. She put two spoonfuls of sugar solution in each of the test tubes. In test tube B, she added a spoonful of yeast. Then she attached two incompletely inflated balloons to the mouth of each test tube. She kept the setup in a warm place, away from sunlight.

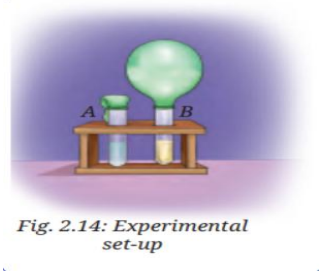


Fig. 2.14: Experimental set-up

(i) What do you predict will happen after 3–4 days? She observed that the balloon attached to test tube B was inflated. What can be a possible explanation for this?

a) Water evaporated in test tube B and filled the balloon with the water vapour.
b) The warm atmosphere expanded the air inside test tube B, which inflated the balloon.
c) Yeast produced a gas inside the test tube B, which inflated the balloon.
d) Sugar reacted with warm air, which produced gas, eventually inflating the balloon.

[Answer. c) Yeast produced a gas inside the test tube B, which inflated the balloon.]

(ii) She took another test tube, 1/4 filled with lime water. She removed the balloon from test tube B in such a manner that the gas inside the balloon did not escape. She attached the balloon to the test tube with lime water and shook it well. What do you think she wants to find out?
[Answer. Aanandi wants to find out if the gas produced by yeast in test tube B contains carbon dioxide. When the balloon is attached to the test tube with lime water and shaken, the lime water will turn milky if carbon dioxide is present.]

3. A farmer was planting wheat crops in his field. He added nitrogen-rich fertiliser to the soil to get a good yield of crops. In the neighbouring field, another farmer was growing bean crops, but she preferred not to add nitrogen fertiliser to get healthy crops. Can you think of the reasons?

   [Answer: The farmer growing bean crops did not need to add nitrogen-rich fertiliser because bean plants, like other legumes, have a special relationship with Rhizobium bacteria. These bacteria live in root nodules of bean plants and can trap nitrogen from the air, converting it into a form that the plants can use to grow healthy. This natural process helps maintain soil fertility, reducing the need for additional nitrogen fertilisers.]

4. Snehal dug two pits, A and B, in her garden. In pit A, she put fruit and vegetable peels and mixed them with dried leaves. In pit B, she dumped the same kind of waste without mixing it with dried leaves. She covered both the pits with soil and observed after 3 weeks. What is she trying to test?

   [Answer: Snehal is trying to test how mixing dried leaves with fruit and vegetable peels affects the decomposition process. She wants to see if the combination in pit A, which includes dried leaves, helps microorganisms break down the waste into manure faster or more effectively compared to pit B, where only the peels are used without dried leaves. This experiment shows the role of microorganisms and the right conditions, like adding dry material, in making nutrient-rich manure.

5. Identify the following microorganisms:
   i) I live in every kind of environment, and inside your gut. **[Ans: Bacteria]**
   ii) I make bread and cakes soft and fluffy**. [Ans: Yeast]**
   iii) I live in the roots of pulse crops and provide nutrients for their growth. **[Ans: Rhizobium]**
6. Devise an experiment to test that microorganisms need optimal temperature, air, and moisture for their growth.
   [Answer: To test that microorganisms need optimal temperature, air, and moisture for their growth, you can follow this experiment:
   Materials needed: 4 small containers, bread slices, water, plastic wrap, a warm place (e.g., near a heater), a cool place (e.g., refrigerator), and a notebook.

Steps:
i)Take four bread slices and label the containers as A, B, C, and D.
ii)For container A, sprinkle a little water on the bread, cover it loosely with plastic wrap to allow air, and keep it at room temperature.
iii) For container B, sprinkle water on the bread, seal it tightly with plastic wrap to block air, and keep it at room temperature.
iv)For container C, do not add water to the bread, cover it loosely with plastic wrap, and keep it at room temperature.
v)For container D, sprinkle water on the bread, cover it loosely with plastic wrap, and place it in a refrigerator.
vi)Observe all containers after 3-5 days and note any growth of mould or microorganisms.
Observations:
Container A should show mould growth because it has optimal moisture, air, and room temperature.
Container B may show little or no growth due to the lack of air.
Container C may show little or no growth due to the lack of moisture.
Container D may show little or no growth due to low temperature.
Conclusion: This experiment shows that microorganisms need the right balance of moisture, air, and temperature to grow, with room temperature being more optimal than a cold environment.]

7. Take 2 slices of bread. Place one slice on a plate near the sink. Place the other slice in the refrigerator. Compare after three days. Note your observations. Give reasons for your observations.
[Answer: Observations:
- **After three days, the bread slice placed near the sink likely shows mould growth, appearing fuzzy or discoloured (e.g., green, white, or black).**
- **The bread slice in the refrigerator likely shows little or no mould growth, remaining mostly unchanged.**

Reasons:
- **The bread near the sink is in a warm, moist environment with air, which are ideal conditions for microorganisms like mould to grow. The sink area may also have more spores from the air or water splashes.**
- **The refrigerator provides a cold temperature, which slows down or stops the growth of microorganisms because they need warmth to thrive. The lack of optimal temperature limits their activity on the bread slice kept there.]**

8. A student observes that when curd is left out for a day, it becomes more sour. What are two possible explanations for this observation?
[Answer: Two possible explanations for the curd becoming more sour when left out for a day are:

a. The Lactobacillus bacteria in the curd continue to feed on the lactose (sugar in milk) and produce more lactic acid, which increases the sourness over time.

b. The warm temperature outside the refrigerator helps the bacteria grow and ferment the curd faster, leading to more lactic acid production and a stronger sour taste.]

9. Observe the set-up given in Fig. 2.15 and answer the following questions.
   (i) What happens to the sugar solution in flask A?
   (ii) What do you observe in test tube B after four hours? Why do you think this happened?
   (iii) What would happen if yeast were not added to flask A?

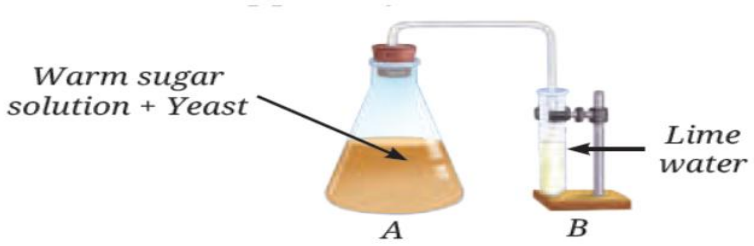


Fig. 2.15 : Experimental set-up

[Answer: i) In flask A, the sugar solution with yeast undergoes fermentation. The yeast breaks down the sugar into alcohol and carbon dioxide gas, causing bubbles to form in the solution.

ii) In test tube B, after four hours, the lime water turns milky or cloudy. This happens because the carbon dioxide gas produced by the yeast in flask A passes into the lime water, reacting with it to form calcium carbonate, which makes it appear milky

iii) If yeast was not added to flask A, there would be no fermentation, and no Carbon dioxide gas would be produced. As a result, the lime water in test tube B would remain clear, with no change observed.]

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