

**LOB : Classify the major crops based on the time they are sown in the field to explain the months in which Kharif and Rabi crop are cultivated**



- 1) A group of students went on two school trips to a field in the same year. They observed the different crops on each trip as shown.

Field Trip	Season	Crops
I	June	Soya bean, groundnut
II	November	Mustard, pea

Why did they observe different crops?

- (a) Soyabean and groundnut are kharif crops which are sown in rainy season while mustard and pea are rabi crops that are sown in winter season.
- (b) Soyabean and groundnut are kharif crops which are sown in winter season while mustard and pea are rabi crops that are sown in rainy season.
- (c) Soyabean and groundnut are rabi crops which are sown in rainy season while mustard and pea are kharif crops that are sown in winter season.
- (d) Soyabean and groundnut are rabi crops which are sown in winter season while mustard and pea are kharif crops that are sown in rainy season.

- 2) The table lists some climatic data of an area

- heavy rainfall
- high humidity
- high average temperature

Which crop can be sown in such conditions?

- (a) Gram
- (b) Maize
- (c) Wheat
- (d) Mustard

**LOB : Sequence the tasks involved in cultivating the crop to list major steps of agricultural practices**

- 1) The table lists some practices for cultivation of crops.

- A. Protection from weeds
- B. Sowing
- C. Harvesting
- D. Preparation of soil
- E. Irrigation
- F. Storage
- G. Adding manure and fertilisers

What is the correct sequence of these agricultural practices?

(a) A→D→F→G→B→C→E

(c) D→B→G→E→A→C→F

(b) G→B→A→C→F→E→D

(d) B→D→E→G→C→F→A

2) A farmer after sowing the seeds adds manure to his field. What should be the immediate next agricultural practice after addition of manure and fertilisers?

(a) Irrigation of soil

(c) Preparation of soil

(b) Storage of crops

(d) Harvesting of crops

**LOB : Explain why it is important to loosen the soil before sowing in order to elaborate the effect of loose soil in plant's growth**

1) A farmer was turning the soil in the field constantly to loosen it. What is the likely reason for this agricultural practice?

(a) This prevent growth of weeds in the soil

(b) This increases the amount of soil in the field

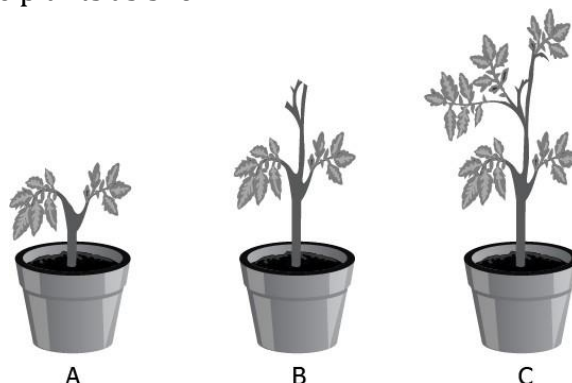
(c) This allows penetration of roots in soil easily

(d) This allows water to stay in soil for longer duration

2) A student setup an experiment to study the growth of plants using three different soil type.



The student plants a bean seed in each of the three pots. After 2 months, the student observes the growth of the plants as shown.



What can be student conclude from this experiment?

(a) Earthworm increases the fertility of the soil

(b) Compact soil increases the amount of nutrients in the soil

(c) Earthworm restrict the growth of the plant by consuming them

(d) Loosed soil with no earthworm allows maximum growth of the plant

**LOB : Compare the advantages of three major tools used for tilling and ploughing to justify the variety of agricultural practices**

- 1) Ravi and Sunil both grew same crop in their fields. Ravi used plough while Sunil used hoe to increase the productivity. After few months, it was observed that both the fields had same productivity despite using different tools. What is the likely reason for this?
- (a) both the tools are made of wood  
(b) both the tools are used to harvest crops  
(c) both the tools are helpful for tilling the soil  
(d) both the tools are useful in removing weeds
- 2) A farmer uses three different types of tools for tilling the soil in three different fields. The farmer records the time it took to complete the tilling in each field using different tools.

Field Trip	Season	Crops
A	Plough	5 hours
B	Hoe	4 hours 20 minutes
C	Cultivator	1 hour 30 minutes

Which tool the farmer should use to till his fields?

- (a) Hoe as it is more efficient.  
(b) Plough as it takes least time.  
(c) Cultivator as it is saves time.  
(d) Hoe as it is more efficient than plough and cultivator

**LOB : Analyse the quality of seeds with respect to their germinability**

- 1) A farmer bought some maize seeds from the market. Before sowing the seeds, the farmer added seeds in the water and stirred the water. After few minutes, the farmer only

collected the seeds that settled down in the bottom for sowing. What is the likely reason choosing the drowned seeds for sowing?

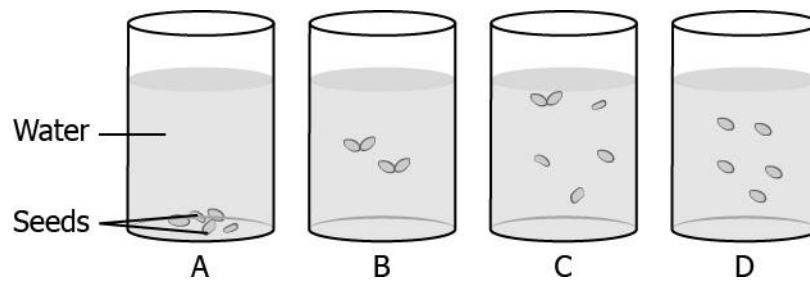
(a) Seeds at the bottom are heavy which will result in plants with good growth.

(c) Seeds at the bottom are light weight which will result in plants that grow taller.

(b) Seeds at the bottom are not damaged which will result in plants that are healthy.

(d) Seeds at the bottom absorbed more water which will result in plants with high water absorption capacity.

2) A student does an experiment with wheat seeds. For the experiment, few seeds of wheat were kept in each of the four glasses that were filled with 200 mL of water and stirred well. After 10 minutes, the student measures the level at which seeds were found in all the glasses as shown.



What can be concluded from the experiment?

(a) Seeds that sinks are healthy and clean

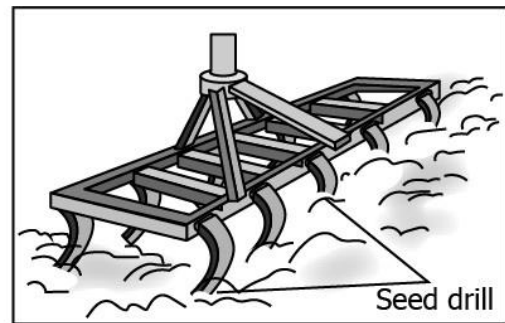
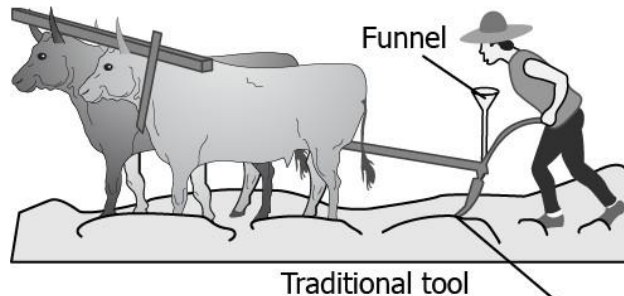
(c) Bottom seeds are heavy as they absorbed more water

(b) Floating seeds are damaged with holes

(d) Seeds at the middle have small air bubbles thus lighter in weight

**LOB : Compare the advantages of two major tools used for sowing to justify the variety of agricultural practices used in the country**

1) The image shows the two tools for sowing seed.



Sharp ends

What is the likely advantage of using seed drill over a traditional tool?

- (a) It adds nutrients in the seed.
  - (b) It protects the seeds from physical damage.
  - (c) It separates healthy seeds from damaged seeds.
  - (d) It sow seeds at equal distance from each other.
- 2) A farmer wishes to use a tool for sowing seeds that protects the seed from being consumed by animals. Which type of tool should the farmer choose?
- (a) seed drill as it coats a chemical above the seeds
  - (b) traditional tool as many seeds are sown together
  - (c) seed drill as it covers the seeds with soil after sowing
  - (d) traditional tool as seeds passes through a funnel-shape tube

**LOB : Distinguish between manure and fertilisers to identify ways in which nutrients in soil is replenished**

1) A farmer uses fertilizers on his land for long period of time plans to start using manure. What will be the likely benefit of this change?

- (a) It will improve the texture and water retention.
- (b) It will decrease the number of earthworms in the soil.
- (c) It will make the soil more compact to hold more water in roots.
- (d) It will increase particular chemicals in the soil to increase the yield.

- 2) A student setup an experiment to study the growth of plants. The student used three potted plants with same amount of soil and additionally added manure in pot A, fertiliser in pot B and left the pot C undisturbed. After 3 months, the student measured the growth of each plant.

Pot	Initial Growth (cm)	Final Growth (cm)
A	10	25
B	10	35
C	10	18

The student again experimented and used the same soil for planting new plant. The table shows the growth of each plant after 3 months.

Pot	Initial Growth (cm)	Final Growth (cm)
A	10	28
B	10	20
C	10	18

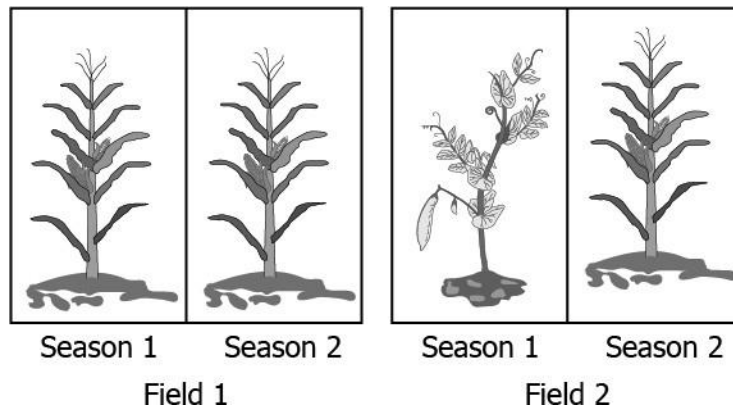
What can the student analyse from the experiment?

- (a) Manure is less effective than fertilisers
- (b) Fertilisers and manure both decrease the soil's fertility
- (c) Use of fertilisers repetitively reduces the soil fertility
- (d) Growth of the plant is better when fertilizers are used instead of manure

**LOB : Describe the process of crop rotation to explain ways in which nutrients in soil is replenished**

- 1) Ramesh wishes to restore the nutrients in the soil of his field without spending money on chemical fertilizers. Which natural method he should likely adopt for replenishment of soil nutrients?
- (a) sowing seeds that are healthy
- (b) growing the same crops every year
- (c) growing different crops alternatively
- (d) supplying water to crops at regular interval

- 2) A farmer grows maize plants in two consecutive seasons in his field 1. Another farmer at the same time grows bean plants in one season and maize plant in the next season in field 2 as shown.



Which field will likely have soil with high nutrients for growth of new plants in the third season?

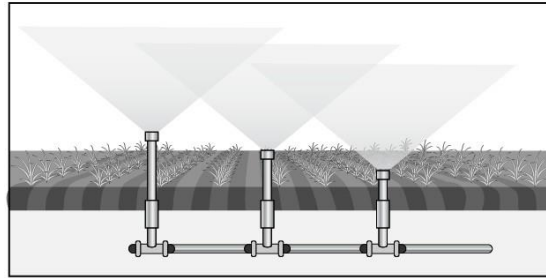
- (a) field 1 as cultivating same crops every season increases productivity of the crops
- (b) field 2 as cultivating different crops reduces the water requirement of crops
- (c) field 1 as cultivating the same crops requires only same type of nutrients
- (d) field 2 as cultivating different crops restore the nutrients in the field

**LOB : Compare and analyse the traditional and modern methods of irrigation based on cost and efficiency in order to predict suitable irrigation method in real life situations**

1) The image shows the two common methods of irrigation.



Pulley system



Sprinkler system

Why a farmer should adopt sprinkler system than pulley system?

- |  |  |
|--|--|
| (a) Sprinkler system reduces wastage of water.                 | (c) Sprinkler system increases water absorption capacity of the crops.         |
| (b) Sprinkler system decreases water requirement of the crops. | (d) Sprinkler system provides excess water to the crops for high productivity. |

2) Kamlesh grows crop in a region of Rajasthan where there are no lakes and very little rainfall. During summers, the low availability of water limits the crop production. Which irrigation method Kamlesh should adopt to use water economically?

- |                  |                      |
|------------------|----------------------|
| (a) drip system  | (c) pulley system    |
| (b) lever system | (d) sprinkler system |

**LOB : Evaluate how weeds adversely affects the growth of the plants in order to justify their removal and control**

1) Which statement supports the activity of removal of weeds by the farmers from their fields?

- |   |  |
|---|--|
| (a) weeds decreases the life span of the crops        | (c) weeds increases water retention making plant roots to rot                    |
| (b) weeds increases the chances of pests on the crops | (d) weeds absorb nutrients from the soil reducing nutrient availability to crops |



- 2) A farmer notices that weeds in the field reduced the crop yield. What can the farmer do to prevent the growth of weeds without investing money on weedicides?
- (a) irrigate the field more
  - (b) do tilling before sowing the seeds
  - (c) reduce the amount of manure added to the soil
  - (d) add fertilisers in the soil for increasing the crop yield

**LOB : Elaborate the process of harvesting to justify the reasons for employing combine and winnowing machine in the process of agriculture**

- 1) Kalyan is a small-scale farmer who grows wheat in his small area of land. At the time of harvesting, which method should he use to separate wheat grains from chaff without spending huge amount of money on machines?
- (a) Combining
  - (b) Harvesting
  - (c) Threshing
  - (d) Winnowing

- 2) Kumari is a farmer who owns large area of a land. Every year she invests large amount of time by harvesting crop manually using sickle. Some farmers advise her to take the help of machine called combine. What is the likely reason for suggesting combine machine to Kumari?

- (a) The machine includes large sickles that increase harvesting time.
- (b) The machine is a harvester as well as a thresher which save time and energy.
- (c) The machine is a harvester as well as a weed remover which reduces weeds in the field.
- (d) The machine includes sowing process that sows new seeds to replace the harvested crop.

**LOB : Distinguish between the practices of large scale and small-scale storage of food in order to conclude that stored grains need protection from pests and microorganisms**

- 1) Ritika observes that her father before storing the grains always dries them under the Sun. What is the likely reason for this activity?
- (a) to keep the grains warm
  - (b) to increase the size of the grains
  - (c) to prepare the grains for germination
  - (d) to reduce the moisture content of the grains

2) A farmer brings six jute bags of wheat at home for storing till they are sold in the market. What method should be employed to store the bags safely?

(a) use of silos to protect grains from pests

(c) use of mint leaves to absorb extra water of the wheat grains

(b) use of pesticide to protect grains from dust particles

(d) use of neem leaves as they prevent growth of fungus and bacteria

**LOB : Identify commonly known food items based on their sources to define animal husbandry**

1) The table lists some commonly found food items.

A. milk  
B. eggs  
C. meat

How these food items can be produced on a large scale?

(a) by doing animal husbandry

(c) by providing food to the animals

(b) by performing plant harvesting

(d) by storing grains in big godowns

2) The table lists some food items.

honey  
wheat  
sunflower oil  
eggs  
fish oil  
beans  
pulses  
cheese  
milk  
apple

Which option correctly classifies sources of the food items?

(a)

<b>Animal Source</b>	honey, fish oil, eggs, cheese, milk
<b>Plant Source</b>	rice, beans, pulses, sunflower oil, apple

(b)

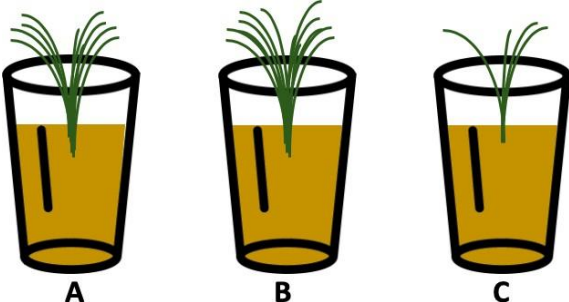
<b>Animal Source</b>	sunflower oil, fish oil, eggs, rice, milk
<b>Plant Source</b>	beans, pulses, apple, honey, cheese


(c)

<b>Animal Source</b>	eggs, pulses, fish oil, honey, sunflower oil
<b>Plant Source</b>	rice, cheese, milk, apple, beans
<b>Animal Source</b>	rice, beans, pulses, sunflower oil, apple
<b>Plant Source</b>	honey, fish oil, eggs, cheese, milk

d

Activity	Show the effect of manure and fertilizers on the growth of seedlings
Prerequisite	NA
Material Required	3 empty glass vessels, germinated moong or gram seeds, small amount of urea, little cow dung manure
Vocabulary	Germination

<p>Procedure</p>	<ol style="list-style-type: none"> <li>1. Take moong or gram seeds and germinate them by soaking in water overnight</li> <li>2. Take three empty glasses or similar vessels marked as A, B and C.</li> <li>3. Add little amount of soil mixed with a little cow dung manure in <b>glass A</b></li> <li>4. Add same amount of soil mixed with a little urea in <b>glass B</b></li> <li>5. Take the same amount of soil in <b>glass C</b> without adding anything</li> <li>6. Keep them in a safe place and water it them daily.</li> <li>7. Note down the observation after 7-10 days</li> </ol> <div style="text-align: center;">  </div>
<p>Let's think</p>	<ol style="list-style-type: none"> <li>1. Which glass shows the highest growth? What were the original contents of the glass showing highest growth?</li> <li>2. Can you name elements and compounds which may have caused this growth?</li> </ol>
<p>Beyond the classroom</p>	<ol style="list-style-type: none"> <li>1. Talk to a local farmer and identify what kind of manure and fertilizer is used by him?</li> <li>2. Does it change with season and crop?</li> </ol>
<p>Activity</p>	<p>Separation of wheat seeds</p>
<p>Material required</p>	<p>Handful of wheat seeds, a glass vessel, water</p>

Procedure	<ol style="list-style-type: none"> <li>1. Take a glass vessel and fill it with water</li> <li>2. Put a handful of wheat seeds and stir it well and wait for sometime</li> <li>3. What do you observe?</li> </ol> 
Let's think	<ol style="list-style-type: none"> <li>1. Why do some seeds float while others sink down?</li> <li>2. Which seeds should be chosen for crop production? Why?</li> </ol>
	<ol style="list-style-type: none"> <li>3.</li> </ol>

**LOB : Recall four major categories of microorganisms (bacteria, fungi, protozoa, algae)**

1) Microorganisms are classified into:

(a) four groups- bacteria, algae, fungi, protozoa

(c) three groups- algae, protozoa, virus

(b) four groups- bacteria, algae, virus, fungi

(d) three groups- algae, virus, bacteria

2) Padma saw some colored cottony growth on the bread she kept open in her kitchen. She uses magnifying glass to observe the microorganisms. Which group of microorganism will she likely observe?

(a) Fungi

(c) Bacteria

(b) Algae

(d) Protozoa



**LOB : Differentiate between microorganisms and viruses to establish that viruses reproduce only in the host body**

- 1) What makes viruses different from the bacteria?
- (a) microscopic size
  - (b) dependency on living cells
  - (c) requirement of moist conditions
  - (d) requirement of food
- 2) Viruses can infect plant cells causing a viral disease. How do the plant cells benefit the viruses?
- (a) They help virus have a place to live.
  - (b) They help virus increase their number.
  - (c) They allow virus to make their own food.
  - (d) They keep virus safe from the surroundings.

**LOB : Elucidate the reason for increasing volume when yeast is added to dough in baking industry to explain fermentation**

- 1) Rahul mixes some maida flour with water and sugar. He also adds small amount of yeast powder in the mixture. After two hours, he see saw that the dough rises. What made the dough to rise?
- (a) The division of yeast cells and production of gas.
  - (b) The reaction of maida flour with sugar.

(c) The release of energy by yeast cell after consumption of Maida flour.

(d) The release of heat due to enlargement of yeast cells.

2) The dough increases in size when yeast is added into it. Which gas is produced by yeast cells and its effect on the dough?

(a) Oxygen gas produced during respiration that increases the volume of the dough.

(c) Oxygen gas produced during reproduction that increases the volume of the dough.

(b) Carbon dioxide gas produced during reproduction that increases the volume of the dough.

(d) Carbon dioxide gas produced during respiration that increases the volume of the dough.

**LOB : Explain the role of antibiotics in order to demonstrate the medicinal uses of microorganisms**

1) Alina has cold and viral flu for the past 5 days. Her mother gave her antibiotics but she is not recovering. What can be a likely reason for the same?

(a) Antibiotics are used against viral infections.

(c) Antibiotics takes time to cure the infection.

(b) Antibiotics are used against bacterial infections.

(d) Antibiotics are to prevent infection rather than to cure them.

2) Alexander Fleming discovered penicillin while working on a disease-causing bacteria in the lab. He observed spores called little green mould on the bacterial culture plate that prevented the growth of bacteria. Who can be treated by the penicillin and how?

(a) A person with bacterial infection as penicillin stops the growth of disease causing bacteria.

(c) A person with bacterial infection as penicillin promotes growth of mould over the bacteria causing infection.

(b) A person with mould infection as penicillin restricts the growth of moulds.

(d) A person with mould infection as penicillin promotes the growth of bacteria over the disease causing mould.

**LOB : Explain the role of vaccinations in fighting with diseases in order to appreciate the medicinal uses of microorganisms**

- 1) In polio vaccination, the dead microbes are introduced into the children's body. How does this vaccination protect the children from polio?
- (a) by producing suitable antibodies that remain in the body
  - (b) by killing the disease-causing microbes directly
  - (c) by increasing the interaction of dead microbes with the live ones
  - (d) by increasing the number of beneficial bacteria
- 2) Antibodies are produced in the body to fight the microbes when they entered the body. How does the human body react when these microbes attack again?
- (a) The human body remembers the microbes and quickly forms antibodies against it
  - (b) The human body becomes weak and is unable to form antibodies against the microbes.
  - (c) The human body eliminates the microbes without even producing antibodies against them.
  - (d) The human body produces antibodies but takes a longer time to overcome the microbial infection.

**LOB : Explain how microorganism help in increasing the nitrogen in soil to the agricultural uses of microorganisms**

- 1) Cyanobacteria and blue green algae are commonly called as nitrogen fixers. They increase the fertility of soil. How do these nitrogen fixers increase the soil fertility?
- (a) They produce nitrogen gas that is released into the surrounding.
  - (b) They convert nitrogen gas present in the surrounding into compost.
  - (c) They fix atmospheric nitrogen to make nitrogen compounds in the soil.
  - (d) They decompose remains of plants and animals to produce nitrogen compounds.
- 2) Some nitrogen fixing bacteria help increase the fertility. This makes the soil more productive. What activity of bacteria helps make soil more productive?
- (a) Supplying compounds of nitrogen to the plant roots.
  - (b) Breaking down nitrogen rich waste into nitrogen gas.
  - (c) Breaking down compounds of nitrogen to release nitrogen gas.
  - (d) Taking up nitrogen from the air and converting it into compounds of nitrogen.



**LOB : Explain microorganisms role in decomposing to describe importance**

- 1) A student takes 2 pots M and N. He puts plant waste in pot M and plastic products in pot N. He places both the pots in an open area for 3- 4 weeks and observes that the content in the Pot M is converted into manure while the content in the Pot N remains the same. What can be a likely reason for the production of manure in pot M?
- (a) Microorganisms decompose plant waste faster than plastic
- (b) Microorganisms degrade plastic slowly compared to plant waste
- (c) Microorganisms only degrade plastic waste to produce manure
- (d) Microorganisms only decompose plant waste into manure
- 2) The decaying leaves and plant waste in our surroundings disappears after some time because of microorganisms. How do these microorganisms help clean our surroundings?
- (a) They convert dead organic waste into complex substances.
- (b) They convert dead inorganic waste into complex substances.
- (c) They convert dead organic waste into simple substances.
- (d) They convert dead inorganic waste into simple substances.

**LOB : Define pathogens to list the class of harmful microorganisms**

- 1) What are pathogens?
- (a) disease causing agents
- (b) carriers of harmful microorganisms
- (c) diseased microorganisms
- (d) carriers of beneficial microorganisms
- 2) What characteristic likely defines a pathogen?
- (a) They can spoil food and plastic.
- (b) They make soil fertile.
- (c) They can infect a human body.
- (d) They breakdown remains of dead organisms.

**LOB : Describe how mosquitoes spread malaria and dengue to explain the role of carriers in spreading communicable disease**

- 1) Which statement associated with mosquito helps understand that malaria is a communicable disease?

(a) The causative agent of malaria is a protozoan.

(c) The mosquito lays its eggs in water collected in tyres, coolers, and open pits.

(b) The mosquito carries the parasite Plasmodium that causes malaria.

(d) The parasite is transferred inside the body of a health person along with the mosquito bite.

2) What is true about the communicable disease 'dengue'?

(a) It occurs due to female *Aedes* mosquitos that act as carrier of dengue virus.

(c) It occurs due to male *Anopheles* mosquitos that act as carrier of dengue virus.

(b) It occurs due to male *Aedes* mosquitos that act as carrier of dengue virus.

(d) It occurs due to female *Anopheles* mosquitos that act as carrier of dengue virus.

**LOB : List examples of diseases in humans, plants and animal caused by microorganisms in order to explain the harmful effects of microorganisms**

1) Which option shows the correct example of diseases in plants or animals and their corresponding harmful agents?

(a)	<table border="1"><thead><tr><th>Disease</th><th>Affects</th><th>Caused by</th></tr></thead><tbody><tr><td>Anthrax</td><td>Plants</td><td>Bacterium</td></tr></tbody></table>	Disease	Affects	Caused by	Anthrax	Plants	Bacterium
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- 2) A student is making a list of diseases caused by different microorganisms in plants and in humans. Which table correctly shows the diseases listed by the student?

a)	<table border="1"> <thead> <tr> <th>Human</th> <th>Plant</th> </tr> </thead> <tbody> <tr> <td>Chicken pox - bacteria Typhoid - bacteria</td> <td>Yellow vein mosaic of okra - fungi Rust of wheat - virus</td> </tr> </tbody> </table>	Human	Plant	Chicken pox - bacteria Typhoid - bacteria	Yellow vein mosaic of okra - fungi Rust of wheat - virus	c)	<table border="1"> <thead> <tr> <th>Human</th> <th>Plant</th> </tr> </thead> <tbody> <tr> <td>Chicken pox - bacteria Typhoid - bacteria</td> <td>Yellow vein mosaic of okra - fungi Rust of wheat - fungi</td> </tr> </tbody> </table>	Human	Plant	Chicken pox - bacteria Typhoid - bacteria	Yellow vein mosaic of okra - fungi Rust of wheat - fungi
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**LOB : List various methods of preserving food in order to demonstrate the restriction of growth of microorganism**

- 1) Which option shows the name and function of preservatives used in jam and squashes?

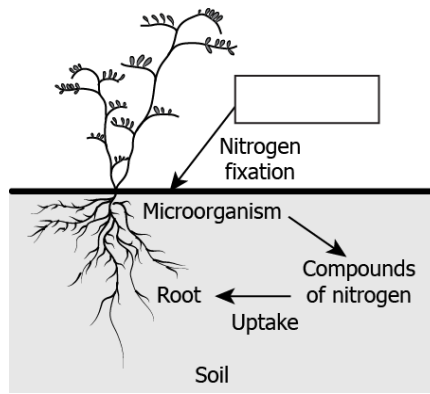
- (a) Sodium benzoate that prevents the action of microorganisms.      (c) Sodium sulphate that prevents the action of microorganism.
- (b) Salt that stops the activity of microorganisms.      (d) Oil that makes the environment unsuitable for the survival of microorganisms.

- 2) Ridha observed that fishes were coated with salt and kept in tray in the fish market. What is the likely use of coating fish with salt?

- (a) It increases the moisture content of the fish allowing it to survive longer.      (c) It increases the salt content of the fish that enhances its taste.
- (b) It stops the growth of bacteria by reducing the moisture content.      (d) It reduces the weight of the fish making the transport easier.

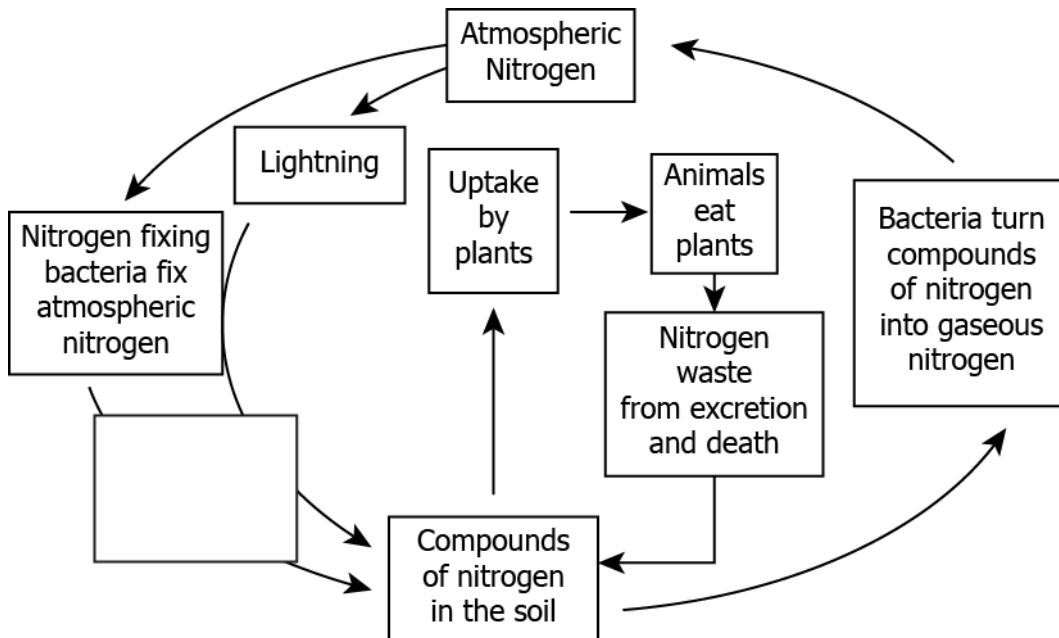
**LOB : Illustrate the process of fixing the nitrogen back in the soil to explain the role of microorganisms in increasing the fertility of soil**

- 1) A student is making an image to show the process of nitrogen fixation. What will be added to the empty box to complete the image?



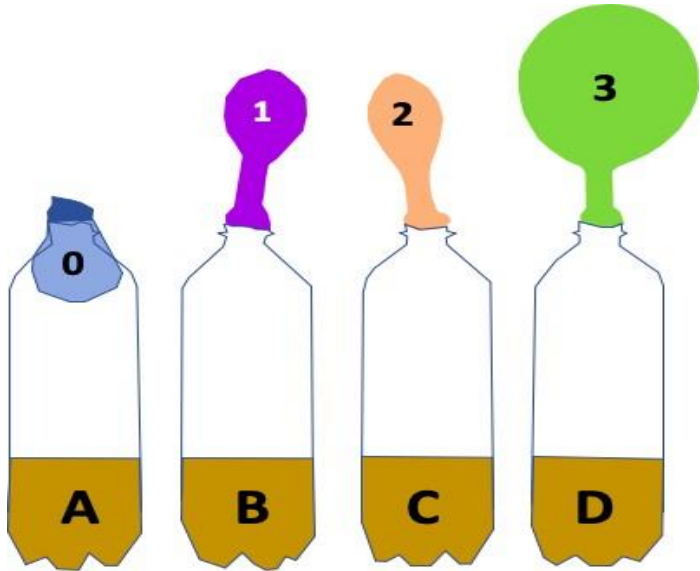
- a) Nitrogen molecules in the soil
- b) Nitrogenous compounds
- c) Atmospheric nitrogen
- d) Nitrogen gas in the soil

2) The image explains a nitrogen cycle.



What should be added to the blank box to complete the cycle?

- (a) Bacteria turn fixed nitrogen into nitrogenous compounds.
- (b) Bacteria fixed nitrogen into soil.
- (c) Bacteria convert the nitrogenous compounds into nitrogen gas.
- (d) Bacteria mix nitrogen gas with the soil.

Activity	Observe the growth of microorganisms
Material Required	4 plastic bottles with caps, sugar, warm water, a small amount of yeast, balloons
Vocabulary	Microorganisms, Yeast
Procedure	<ol style="list-style-type: none"> <li>1. Take each bottle and label them as A,B,C and D</li> <li>2. Pour warm water in each of the plastic bottles</li> <li>3. Add small amounts of yeast in all four of them</li> <li>4. Add one, two, three and four tablespoons of sugar in each one of them</li> <li>5. Shake the bottle gently</li> <li>6. Replace the cap of the bottle and cover it with a balloon.</li> <li>7. Note your observations</li> </ol> 
Let's think	<ol style="list-style-type: none"> <li>1. Is the size of balloon same or different? Can you identify the original contents of the bottle with the biggest balloon?</li> <li>2. What is causing the balloon to inflate?</li> </ol>
Beyond the classroom	Where else do you see microorganisms release gases? Is the released gas useful? Where is it used?

