

Living Creatures: Exploring their Characteristics

Chapter-10

Ques 1.

How would you now categorise a seed, as living or non-living? (Page 191)

Answer:

Seed is a living thing. Seed can grow into a plant under right conditions.

Ques 2.

How can the life cycle of a mosquito be disrupted? (Page 197)

Answer:

Larvicides (a substance used to kill larvae) target larvae in the breeding habitat before they can mature into adult mosquitoes and disperse. Larvicide treatment of breeding habitats helps reduce the adult mosquito population in nearby areas.

Liquid larvicide products are applied directly to water using backpack sprayers and truck or aircraft-mounted sprayers. Tablet, pellet, granular, and briquet formulations of larvicides are also applied by mosquito controllers to breeding areas.

Let Us Enhance Our Learning (Page 203 – 204)

Ques 1.

List the similarities and differences in life cycles of plants and animals.

Answer:

Ques 2.

Similarities in Life Cycles of Plants and Animals	Differences in Life Cycles of Plants and Animals
(i) Development Stage: Both have distinct stages of development (e.g., germination, flowering in	(i) Respiration: While both respire, the mechanisms differ; animals use lungs or gills, plants use stomata and lenticels.

plants; egg, larva, adult in animals).	
(ii) Growth: Both plants and animals grow from a small initial stage (seed or embryo) into a mature form.	(ii) Growth Patterns: Plants exhibit indeterminate growth (can grow throughout their life), while animals have determinate growth (stop growing after reaching maturity).
(iii) Reproduction: Both undergo process to produce offspring (seeds for plants and young ones for animals).	(iii) Reproductive Structures: Animals have specialized organs for reproduction, while plants use flowers, cones, or spores.

The table (See NCERT Textbook, Page 204) shows some data. Study the data and try to find out examples appropriate for the conditions given in the second and third columns. If you think that an example for any of the conditions given below is not possible, explain why?

S. no.	Does it grow?	Does it respire?	Example	Remarks
1.	No	No		
2.	No	Yes		
3.	Yes	No		
4.	Yes	Yes		

Answer:

S. no.	Does it Grow?	Does it respire?	Example	Remarks
1.	No	No	Rock	Non-living, No growth or respiration
2.	No	Yes	Virus	Viruses are non-living outside host cells but respire in host
3.	Yes	No	Crystals (salt)	Non-living can perform tasks but does not respire
4.	Yes	Yes	Humans, Plants	Living beings

Ques 3.

You have learnt that different conditions are required for seed germination. How can we use this knowledge for proper storage of grains and pulses?

Answer:

To ensure proper storage of grains and pulses and prevent germination:

- Keep Dry
- Cool Storage
- Airtight Containers

Ques 4.

You have learnt that a tail is present in a tadpole but it disappears as it grows into a frog. What is the advantage of having a tail in the tadpole stage?

Answer:

- The tail in the tadpole stage of a frog provides
- Swimming Ability: It helps the tadpole swim efficiently in water to find food and escape predators.
- Balance and Stability: Assist in maintaining balance while moving in water.

Ques 5.

Charan says that a wooden log is non-living as it cannot move. Charu counters it by saying that it is living because it is made of wood obtained from trees. Give your arguments in favour or against the two statements given by Charan and Charu.

Answer:

- Against Charan: The wooden log was once part of a living tree, which was alive and exhibited characteristics of living beings.
- Against Charu: Once the wood is separated from the tree, it no longer exhibits growth, reproduction, or other life processes, making it non-living.

Ques 6.

What are the similarities and distinguishing features in the life cycles of a mosquito and a frog?

Answer:

Similarities

- Both begin life as eggs.
- Both have a larval stage (tadpole in frogs, larvae in mosquitoes) that is aquatic.

Distinguishing Features

Mosquitoes have four stages

Egg → Larva → Pupa → Adult

Respiration: Larvae and pupae breathe through siphons.

Frog has four stages

Egg → Tadpole → Froglet → Adult

Respiration: Tadpoles have gills, adults have lungs and can respire through their skin.

Ques 7.

A plant is provided with all the conditions suitable for its growth (Fig. below). Draw what you expect to see in the shoot and the root of the plant after one week. Write down the reasons.



Fig: Pot kept along the ground

Answer:

Expected observations

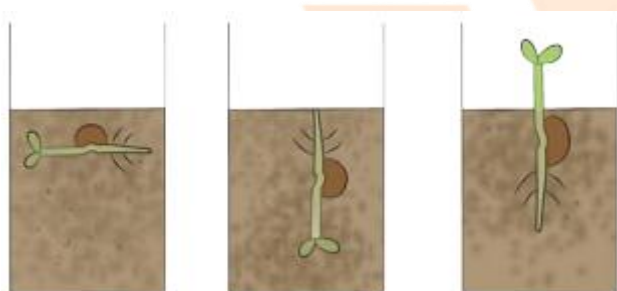
- Shoot: Growth upwards, towards the light source.
- Root: Growth downwards, into the soil for stability and nutrient absorption.

Reasons

- Shoots grow towards light (phototropism) for photosynthesis.
- Roots grow downwards (gravitropism) for – nutrient absorption.

Ques 8.

Tara and Vijay set up the experiment' shown in the picture (Fig. below). What do you think they want to find out? How will they know if they are correct?



Experimental set-up

Answer:

Tara and Vijay are likely trying to understand how the orientation of a seed affects the growth direction of the shoot (the green part above ground) and the root (the part below ground).

Observation: If the shoot always grows upwards (towards the light) and the root always grows downwards (into the soil), regardless of how the seed is placed, this shows that plants have natural mechanisms (like phototropism and gravitropism) that guide their growth direction.

Ques 9.

Design an experiment to check if temperature has an effect on seed germination

Answer:

AIM: Experiment to Check the Effect of Temperature on Seed Germination

Materials: Identical pots, soil, seeds, thermometers, and different temperature-controlled environments (e.g., refrigerator, room temperature, heated environment).

Procedure

- (i) Fill each pot with the same type of soil.
- (ii) Plant seeds in each pot.
- (iii) Place each pot in a different environment with controlled temperatures (e.g., cold, room temperature, warm). For example, keep one pot outside in balcony to get sunlight. Put another in shade in the room. Keep the third one in basement or at coldest part of the house.
- (iv) Water each pot equally.
- (v) Record the number of seeds germinated in each environment daily for two weeks.

Observation: Measure and compare the rate of germination and growth in different temperatures.

Conclusion: Determine the optimal temperature for seed germination based on observations.

Activities

Activity 10.2 (Page 188)

When a seed turns into a sprout, it is said to have germinated. Predict whether the seeds in each pot will germinate. Record your predictions for each pot kept under different conditions in Table.

Pot with bean seeds	Availability of			Seed germination		Possible reason for the observation
	Air	Sunlight	Water	Prediction	Observation	
A: In direct sunlight and without water			No			
B: In direct sunlight and excess water						
C: In complete dark and moist soil						
D: In direct sunlight and moist soil						

Answer:

Table: Effect of certain conditions on seed germination

Pot with bean seeds	Availability of			Seed germination		Possible reason for the observation
	Air	Sunlight	Water	Prediction	Observation	
A: In direct sunlight and without water	Yes	Yes	No	No	No seed germination	Water is necessary for the germination of seed
B: In direct sunlight and excess water	Yes	Yes	Yes (excess)	Yes	No, proper seed germination	In presence of excess water. Seeds can not disappear. So seed can not germinate properly.
C: In complete dark and moist soil	Yes	No	Yes (limited)	Yes	Yes, seed can be germinate	Light is not necessary for a seed to germinate. The majority of seeds grow most effectively in the dark
D: In direct sunlight and moist soil	Yes	Yes	Yes (limited)	Yes	Yes, seed can be germinate.	Light is not necessary for seed to germinate. The majority of seeds grow most effectively in the dark

Motion and Measurement of Distances

1. Give two examples each of modes of transport used on land, water and air.

Ans:

(i) Land—Bus, truck, train.

(ii) Water—Ship, boat.

(iii) Air—Aeroplane, Helicopter.

2. Fill in the blanks:

(i) One metre is_____

(ii) Five kilometre is_____

(iii) Motion of a child on a swing is_____ .

(iv) Motion of the needle of a sewing machine is_____ .

(v) Motion of wheel of a bicycle is_____ .

Ans:

(i) 100

(ii) 5000

(iii) periodic (oscillatory) motion

(iv) periodic oscillatory (v) circular.

3. Why can a pace or a footstep not be used as a standard unit of length?

Ans: Because a pace or a footstep of each and every person is not equal.

4. Arrange the following lengths in their increasing magnitude :

1 metre, 1 centimetre, 1 kilometre, 1 millimetre.

Ans: Ascending order of length:

1 millimetre < 1 centimetre < 1 metre < 1 kilometre

5. The height of a person is 1.65 m. Express it in cm and mm.

Ans:

(a) 1.65 m, as one metre = 100 cm

= 1.65 x 100 cm = 165 cm

(b) 165 x 10 x 10 mm = 1650 mm.

6. The distance between Radha's home and her school is 3250 ,m. Express this distance in km.

Ans:

As one km = 1000 m

So,
$$3250 \text{ m} = \frac{3250}{1000} \text{ km} = 3.250 \text{ km}$$

Thus, distance between Radha's home and her school is 3.250 km.

7. While measuring the length of a knitting needle, the reading of the scale at one end is 3.0 cm and at the other end is 33.1 cm. What is the length of the needle?

Ans: Length of the needle = 33.1 cm – 3.0 cm = 30.1 cm.

8. Write the similarities and differences between the motion of a bicycle and a ceiling fan that has been switched on.

Ans:

(i) Similarity: Both the wheel of a bicycle and a ceiling fan exhibit motion on a fixed axis.

(ii) Dissimilarity: Bicycle moves forward thus executes rectilinear motion but fan does not show such motion.

9. Why could you not use an elastic measuring tape to measure distance? What would be some of the problems you would meet in telling someone about a distance you measured with an elastic tape?

Ans: An elastic measuring tape gives incorrect length of the distance between two points.

Reasons:

(i) The length of the elastic tape varies and depends upon the force by which it is stretched.

(ii) Measurement would vary between 2 or 3 readings even when measured by the same person and by the same elastic tape.

(iii) Measurement would also vary if different persons measure the same distance.

10. Give two examples of periodic motion.

Ans:

(i) Oscillations of a pendulum.

(ii) Motion of swing/motion of earth round the sun.

Class 6 Science Chapter 10 VERY SHORT ANSWER TYPE QUESTIONS

1. Are senses reliable for accurate measurement?

Ans: Our senses are not reliable for accurate measurement.

2. Why can hand span and arm length not be used as standard units of length?

Ans: because these vary from person to person.

3. How many centimetres are there in 1 m?

Ans: 100 cm.

4. Name the measuring device which can be used for measuring the girth of a tree.

Ans: Measuring tape.

5. Give one example of linear motion.

Ans: Motion of stone falling from a certain height.

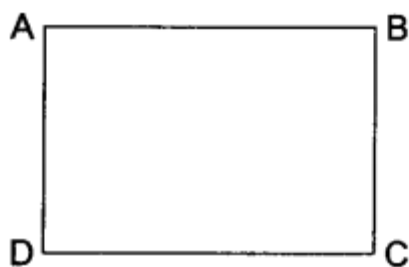
6. Give an example of circular motion.

Ans: Motion of arms of watch.

7. Name the types of motion in which a body moves along a straight path

Ans: Rectilinear or linear motion.

8. Find the length and breadth of given rectangle in mm and cm.



Ans: Using measuring scale (15 cm scale), Length AB = 3 cm and breadth BC = 2 cm.

$$AB = 3 \times 10 = 30 \text{ mm}$$

$$BC = 2 \times 10 = 20 \text{ mm.}$$

9. Give the unit for measuring the following:

(a) Distance between Delhi and Jaipur.

(b) Thickness of a coin.

- (c) Length of your eraser.
- (d) Length of your shoe lace.

Ans:

- (a) Kilometre
- (b) Millimetre
- (c) Centimetre
- (d) Centimetre

10. Name the device used to measure the following:

- (a) Size of your shoulder.
- (b) Size of your wrist.
- (c) Your height.
- (d) Your weight.
- (e) Cloth for curtain.
- (f) Circumference of round table.

Ans:

- (a) Measuring tape
- (b) Measuring tape
- (c) Measuring tape
- (d) Weighing balance
- (e) Metre scale or measuring tape
- (f) A long thread or measuring tape.

Class 6 Science Chapter 10 SHORT ANSWER TYPE QUEST

1. State two precautions to be observed while measuring length with the help of a metre scale.

Ans: Two precautions are:

- (i) The initial point of distance must coincide with the zero reading of metre scale.
- (ii) The eye should be kept in line with the point of measurement.

2. Define rest and motion.

Ans: The objects which do not change their positions with time are said to be at rest. The objects which change their positions with time are said to be in motion.

3. Define the term standard unit.

Ans: The unit that could be used everywhere as a basic unit of measurement is called a standard unit.

4. How can a measured length be expressed?

Ans: Each measurement has:

- (i) A number describing the numerical value.
- (ii) The unit in which that quantity is measured.

5. Give one example each of the following types of motion:

- (a) Linear
- (b) Translation
- (c) Circular
- (d) Periodic.

Ans:

Types of motion

- (a) Linear
- (b) Translatory
- (c) Circular
- (d) Periodic

Example

motion of stone falling
buses
ceiling fan
pendulum of clock

LONG ANSWER TYPE QUESTIONS

1. Why do we need standard unit for measurement?

Ans: We need standard unit for measurement to make our judgement more reliable and accurate. For proper dealing, measurement should be same for everybody. Thus there should be uniformity in measurement. For the sake of uniformity we need a common set of units of measurement, which are called standard units. Nowadays SI units are used in science and technology almost universally.

2. What type of motion do the following objects have?

- (a) the galloping of a horse
- (b) the needle of a sewing machine
- (c) the movements of a mosquito
- (d) the blades of an electric fan
- (e) the smoke from a lighted dhoopbatti
- (f) wheels of moving car.

Ans:

- (a) The galloping of a horse: Linear motion.
- (b) The needle of a sewing machine: Periodic motion.
- (c) Movement of a mosquito: Random motion.
- (d) Blade of an electric fan: Circular motion.
- (e) The smoke from a lighted dhoopbatti: Random motion.
- (f) Wheels of moving car: Linear motion and Rotational motion.

3. Give two examples for each of the following motions:

- (i) Linear motion
- (ii) Spinning motion
- (iii) Oscillatory motion
- (iv) Periodic motion
- (v) Vibrational motion
- (vi) Circular motion
- (vii) Random motion

Ans:

- (i) Linear motion: (a) Rolling of ball on ground, (b) Moving of bicycle on road,
- (ii) Spinning motion: (a) Rotating fan, (b) Wheel of sewing machine.

(iii) Oscillatory motion: (a) Pendulum of clock, (b) Motion of a child on a swing,

(iv) Periodic motion: (a) Pendulum of clock, (b) Motion of a swing, heartbeat.

(v) Vibrational motion: (a) String of a guitar, (b) Surface of drums.

(vi) Circular motion: (a) Rotation of fan, (b) Bicycle wheel.

(vii) Random motion: (a) Motion of football players, (b) Movement of mosquito.

