Chapter 2

Diversity in the Living World

“ छायामन्यस्य कुर्वन्ति तिष्ठन्ति स्वयमातपे ।
फलान्यपि परार्थाय वृक्षाः सत्पुरुषा इव ॥

(सुभाषित)

Trees stand in the Sun and give shade to others. Their fruits are also for others. Likewise, good people bear all hardships and bring welfare to others. They give to others whatever they have earned.

(Wise saying) ”

0677CH02



It is a pleasant morning after yesterday’s refreshing rain. Dr Raghu and Maniram *chacha* (uncle) have been invited to the school by the science teacher, Madam Sulekha, to

© NCERT not to be republished

facilitate an exciting nature walk. Dr Raghu is a scientist at the nearby Research Laboratory and Maniram *chacha* is an elderly person from a nearby community. Maniram *chacha* is an expert in mimicking bird calls. He is also brilliant at identifying a variety of plants and animals.

To prepare them for the nature walk, Dr Raghu informs the students that the objective of this walk is to experience the beauty and variety of plants and animals in the nature. The students are excited to join them. They are curious to interact and learn from them. The teacher advises the students to carry a notebook, a pen and a water bottle.

As they walk, they begin exploring the plants and animals around them. Dr Raghu advises the students to notice the variety of smells in the park and emphasises respecting all living creatures and observing them without disturbing. Maniram *chacha* tells the students to not only observe different plants and animals but also to carefully listen to different sounds. The students come across a variety of plants, including grasses, bushes, and large trees. They also observe a variety of birds sitting on the branches of trees, butterflies moving from flower to flower and monkeys jumping from one tree to another. They record their observations in their notebooks and discuss them with Dr Raghu and Maniram *chacha*.



The students can hear the chirping of birds. Dr Raghu informs them that each bird has a unique chirp. This is an example of diversity in nature. Dr Raghu requests Maniram *chacha* to mimic calls of some birds. Maniram *chacha* mimics different bird calls. The students enthusiastically start copying him.

Have you ever observed different plants and animals around you? Share and discuss your observations with your friends and teacher.

2.1 Diversity in Plants and Animals Around Us

Activity 2.1: Let us explore and record

- Plan a nature walk with your teacher to a park or a nearby forest.
- While on the nature walk, **observe** different plants, insects, birds, and other animals. Also, note the weather conditions, whether it is hot, cold, windy and so on.

© NCERT not to be republished

- You can collect different types of fallen leaves or flowers and **create** a scrapbook.
- Take care of the plants and animals in nature. Ensure that you do not disturb the plants and animals in the park. Do not pluck leaves and flowers.
- **Record** your observations in Table 2.1 about the features of stems, leaves, flowers and anything interesting in various plants. Some examples have been given for you in Fig. 2.1 and Table 2.1.



(a) Grass *(b) Tulsi (Holy Basil)* *(c) Hibiscus (Gudhal)*

Fig. 2.1: Examples of different features of some plants

Table 2.1: Observations of different plants around us

S. no.	Local name of plant	Stem	Leaves (shape/ arrangement of leaves)	Flowers	Any other observations and features
1.	Common grass	Soft and thin	A single leaf grows alternatively from different points on the stem		Green leaves
2.	*Tulsi*	Hard and thin	Arrangement of a pair of leaves in the opposite directions	Pinkish purple	
3.	Hibiscus	Hard			
4.	Neem	Hard and thick			Leaves with smooth surface
5.	Any other				

© NCERT not to be republished

What similarities and differences did you find among the plants that you observed?

You must have observed that plants have a variety of features such as—

- tall/short, hard/soft stem
- different shapes of leaves and their arrangement on the stem or branches
- flowers varying in colour, shape, and scent

Now, create a list of animals you observed during this walk or from your previous experiences. Record the places where they live, the food they eat and the way they move around in Table 2.2. Some examples have been provided for you.

Table 2.2: Observations of different animals around us

Name of the animal (local name)	Place where they live	Food they eat	The way they move around	Any other observations and features
Crow	Tree	Insects	Fly and walk	Carrying a twig in its beak
Ant	Nest in soil and burrow	Leaves, seeds and insects		Have six legs
Cow		Grasses, leaves		
Any other				

What are the similarities and differences among the animals that you have observed and recorded in Table 2.2?

You would have observed that some animals live on land while some others live on trees. Birds live on trees. Fish live in water and some animals like frogs live on land as well as in water. Animals consume a diverse range of foods and exhibit a variety of movements.

Sketch the plants and animals observed by you in your notebook or prepare a scrapbook with leaves, flowers from different plants and feathers from animals. Write all the details you have gathered about them.

© NCERT not to be republished

Reprint 2026-27

While travelling to and from school, observe your surroundings and look out for a variety of plants and animals. Add the name of any plant or animal that you have not listed before in Tables 2.1 and 2.2.

Activity 2.2: Let us appreciate

- Close your eyes for 30 seconds and think of one plant and one animal that you have closely observed and appreciated very much.
- Now each one of you can draw the plant and animal that you thought of on the blackboard.
- What are your observations about the various plants and animals that have been drawn?



- How many different plants and animals did the entire class draw on the blackboard?
- Do you think that there may be many more varieties of plants and animals other than those drawn on the board?

The variety of plants and animals found in a particular region contributes to the **biodiversity** of that region.

© NCERT not to be republished

Each member in the biodiversity of a region has a different role to play. For example, trees provide food and shelter to some birds and other animals, animals help in spreading seeds after eating fruits, and so on. Can you think of more such examples? This shows that plants and animals are dependent on each other.

2.2 How to Group Plants and Animals?

How would you arrange your books and notebooks in groups? Would arranging them in groups help you better organise your school bag?

Now, let us look at the world around us. We are surrounded by a variety of plants and animals with different features about which you have learnt in section 2.1. We can group them based on similarities and differences among them.

Activity 2.3: Let us group

- Collect pictures of various other plants and animals. Cut their pictures from old magazines, newspapers, charts and other sources. Paste each of these pictures on a different card.
- Divide your class in groups of 5–6 students each.
- Pool the cards prepared by the students in your group.
- Observe various features of plants and animals shown on the cards.
- Recall the features of plants and animals that you have listed in Tables 2.1 and 2.2.
- **Group** them on the basis of common features.
- Share and discuss the basis of grouping you have made with other groups in your class.

You will be surprised to see that the basis used by different groups may vary. What do you think are the reasons behind it? Different students might have chosen different common features for the grouping. For example, some students may have chosen the height of plants as the basis for grouping while others might have chosen presence or absence of flowers as the basis for grouping of plants (See Fig. 2.2).

© NCERT not to be republished

Reprint 2026-27



Fig. 2.2: Some possible criteria of groupings of plants and animals

You may have grouped animals based on varied features, such as what they eat, where they live, what colour they are and how they move.

What is the importance of grouping? Grouping makes it easier to understand and study plants and animals on the basis of their similarities and differences.

You will learn more about the importance of grouping in our daily lives in the chapter, 'Materials Around Us'.

2.2.1 How to group plants?

You must have noticed that plants show variation in the features related to stems, leaves, flowers, and more. The stems of different plants vary in thickness, height, and hardness, while the leaves vary in shape, colour, size and arrangement. You might have tried grouping the plants in Activity 2.3 using one of these features.

You might have also learnt in earlier classes that plants can be grouped into herbs, shrubs, and trees based on their height and types of stem. Let us study the features of plants in more detail and group them on that basis.

Activity 2.4: Let us group

- Let us go on a nature walk again for some more interesting observations.
- Look closely at the height of different plants. Are these plants shorter than you, as tall as you, or taller than you?
- Is the stem brown or green? Touch and feel the stems and try to bend them gently. Can you bend the stem easily, or is it stiff? Take care that the stems do not break.
- Also, observe from where the branches of the plants arise—whether they arise close to the ground or higher up on the stem. Fill in your observations in Table 2.3. A few examples are already given.

© NCERT not to be republished

Reprint 2026-27

Table 2.3: Grouping of plants based on height and nature of stem

S. no.	Name of the plant	Height	Nature of stem			Appearance of branches		Name of plant group
		Short/ Medium/ Tall	Green/ Brown	Tender/ Hard	Thick/ Thin	Close to the ground	Higher up on the stem	
1.	Mango	Tall	Brown	Hard	Thick		Yes	Tree
2.	Rose	Medium	Brown	Hard	Thin	Yes		Shrub
3.	Tomato	Short	Green	Tender	Thin	Yes		Herb



(a) Tree

What differences do you observe among herbs, shrubs, and trees? How can you group plants as herbs, shrubs, and trees based on the data entered in Table 2.3?

Some plants grow really tall and have hard, thick, brown, and woody stems. Their branches typically start higher up on the stem and away from the ground. These plants are called **trees**. For example, a mango tree (Fig. 2.3a).



(b) Shrub



(c) Herb

Fig. 2.3: Types of plants

© NCERT not to be republished

Some plants are not as tall as trees. These plants often have many brown woody stems that start branching very close to the ground. These stems are hard but not as thick as the stem of a tree. These plants are called **shrubs**. For example, a rose plant is a shrub (Fig. 2.3b).

Some plants are typically small with soft and green stems. These are known as **herbs**. For example, a tomato plant is a herb (Fig. 2.3c).

Some plants with weak stems need support to climb and grow, and are called **climbers**. Some plants creep along the ground and are called **creepers**.

What can be other features on the basis of which you can group plants? Let us perform another activity.

Activity 2.5: Let us compare

- Look at the leaves of different plants collected by you, during the nature walk.
- Do you notice any variation in the shape and structure of these leaves?

You may observe thin lines on the leaves of the plants (Fig. 2.4a). These are **veins**. The pattern of veins on the leaf is called **venation**. What differences do you see in the veins of leaves shown in Fig. 2.4a and Fig. 2.4b?



(a) Hibiscus leaf with reticulate venation

(b) Banana leaf with parallel venation

(c) Grass leaf with parallel venation

Fig. 2.4: Leaves showing different types of venation

In some leaves, you can observe a net-like pattern of veins on both sides of a thick middle vein. This pattern is called **reticulate venation**. For example, leaves of hibiscus exhibit reticulate venation (Fig. 2.4a). In some leaves, you may observe that the veins run parallel. This pattern is called **parallel venation**. For example, the leaves of banana plants and grasses exhibit parallel venation (Fig. 2.4b and Fig. 2.4c).

© NCERT not to be republished

Reprint 2026-27

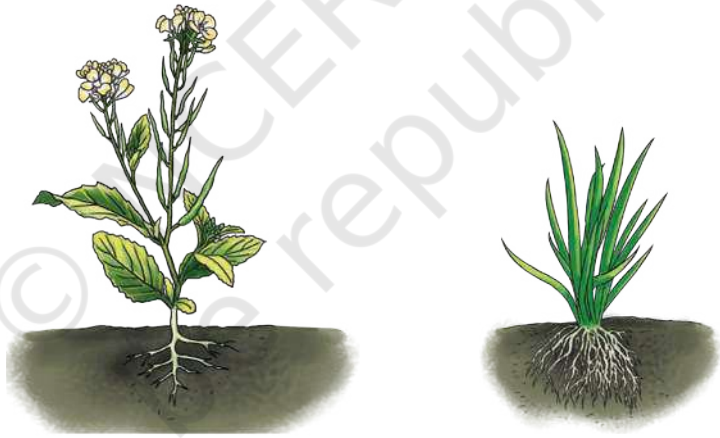
Do you think that plants can be grouped on the basis of venation present in their leaves?

Now, let us try to **explore** roots of the plants. Do all plants have roots? Are these roots similar?

Activity 2.6: Let us find out

- Visit an open area where wild herbs and grasses are growing. You may use small herbs for this exercise.
- Using a *khurpi* (trowel), carefully dig out a few different herbs without damaging the roots. To do this, you may wet the soil and loosen it.
- Wash the roots with water and observe them.
- After you are done observing, make sure to replant the herbs so that they may continue to thrive and grow.

What are the similarities and differences in the roots of the plants collected by you? What differences do you see in the roots of plants shown in Fig. 2.5a and Fig. 2.5b?



(a) Taproot system in a mustard plant

(b) Fibrous root system in common grass

Fig. 2.5: Types of roots

Carefully observe the roots of a mustard plant in Fig. 2.5a. The roots of this plant consist of one main root and small side roots arising from it. The main root is called **taproot**. Another example of a plant having taproots is hibiscus observed by you in Activity 2.1. The plant in Fig. 2.5b is a common grass plant. The roots of this plant appear as a bunch of similar-sized thin roots arising from the base of the stem. Such roots are called **fibrous roots** (Fig. 2.5b). Does your collection include any other grasses? What kind of roots do they have?

© NCERT not to be republished

Is there any relation between the type of leaf venation and the type of root of the same plant? How do we find this out?

Activity 2.7: Let us relate and analyse

- Collect saplings of five common plants from your school nursery or any other nurseries to plant in your school garden. Examples of such plants can include lemongrass, marigold, *sadabahar* (periwinkle), and others.
- Before planting them, observe their roots and the venation in their leaves.
- Record your observations in Table 2.4.

Table 2.4: Types of leaf venation and roots

S. no.	Name of the plant	Type of leaf venation (reticulate/ parallel)	Type of root (fibrous/tap)
1.	Lemongrass	Parallel	Fibrous
2.			
3.			
4.			
5.			

Do you observe any relation between the leaf venation and types of root in these plants? A *sadabahar* plant has a taproot and its leaves have reticulate venation. Do other plants with reticulate venation have taproots too? Lemongrass, on the other hand, has fibrous roots and its leaves have parallel venation. Do other plants with parallel venation have fibrous roots too? Generally, plants with reticulate venation have taproots while those with parallel venation have fibrous roots.

Chickpea (*chana*) is another example of a plant with taproots and reticulate venation in leaves. Wheat is an example of a plant with fibrous roots and parallel venation in its leaves.

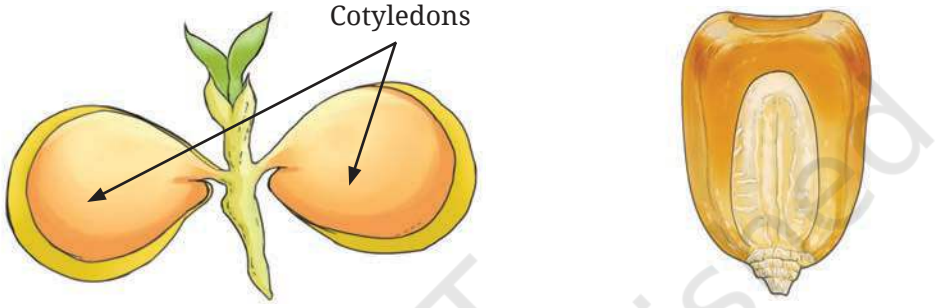
© NCERT not to be republished

Reprint 2026-27

Is there any relation among the seed of a plant, types of root and leaf venation? Are all seeds similar?

Activity 2.8: Let us compare

- Soak some chickpea and maize seeds in water for two or three days.
- Remove the seed coat of a chickpea. Now, observe the structure of the chickpea and maize seeds. Are they similar or different?



(a) Dicot seed (chickpea) *(b) Monocot seed (maize)*

Fig. 2.6: Dicot and monocot seeds

You would notice that chickpea seeds are split into two parts (Fig. 2.6a). Each part is called a **cotyledon**. Plants that have seeds with two cotyledons are called **dicotyledons (dicots)**. Maize has a single thin cotyledon (Fig. 2.6b). Plants with such seeds are called **monocotyledons (monocots)**.

What relation do you observe among leaf venation, root types and the number of cotyledons in seeds of a plant? **Dicot plants** have reticulate venation and a taproot system while **monocot plants** have parallel venation and a fibrous root system.

You have learnt about some features used for grouping plants. Now, let us explore the grouping of animals in more detail.

2.2.2 How to group animals?

Just like plants, animals too are significantly different from one another. How can we group such a wide variety of animals? What features can you think of to group them? In Activity 2.3, you have already set some bases for grouping animals. Let us explore a few of these in more detail.

© NCERT not to be republished

Activity 2.9: Let us find out

You have recorded the movement of a few animals in Table 2.2. You may have also observed how other animals move from place to place. Let us now think about the types of movement in animals. A number of animals are shown in Fig. 2.7. You can add more animals that you may have observed and create a poster on the variety of animals. Which body parts are used by the animals in the poster you created and those in Fig. 2.7 for movement?

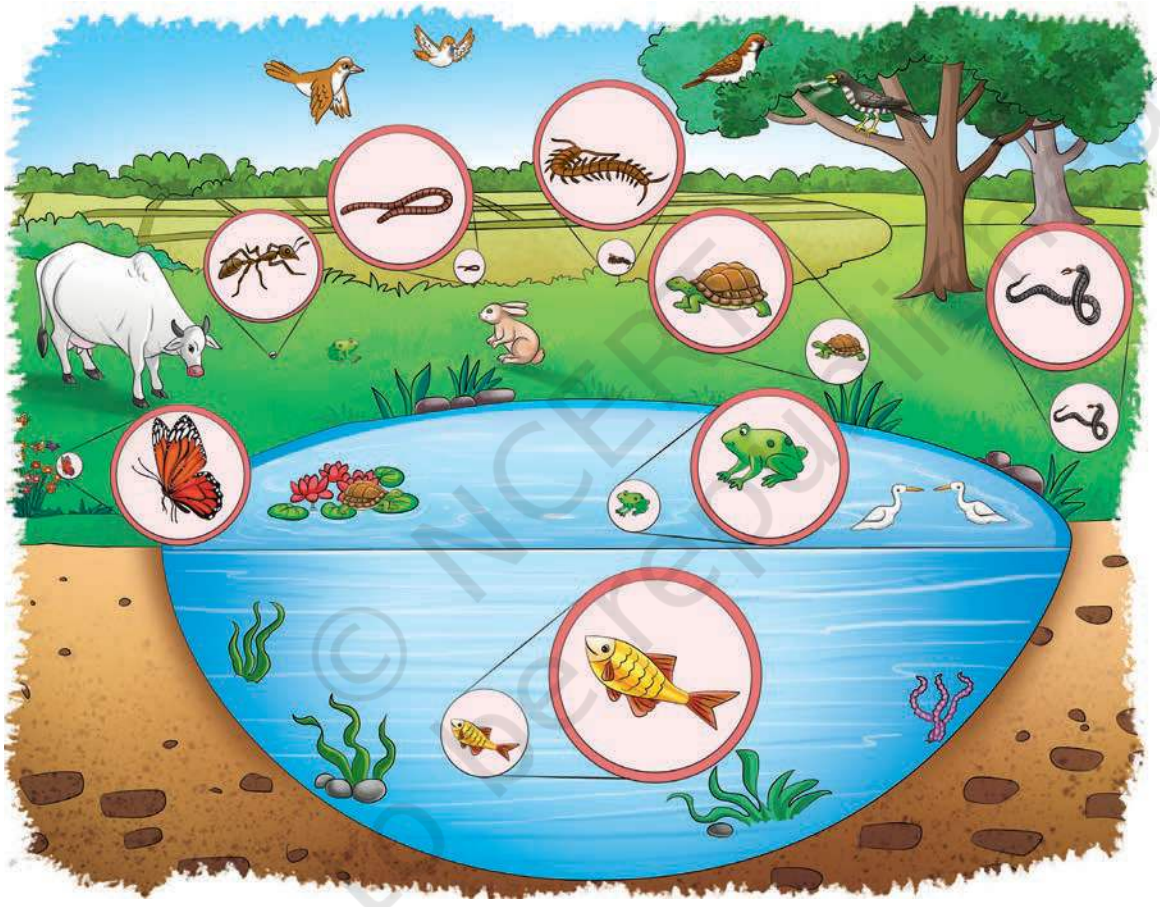


Fig. 2.7: Diversity in animals

- List these animals in Table 2.5.
- Note the ways in which these animals move and name the body parts used for movement. Some examples are given in Table 2.5.

© NCERT not to be republished

Table 2.5: Movements in animals and their body parts involved

S. no.	Name of the animal	Type of movement	Body parts used for movement
1.	Ant		Legs
2.	Goat	Walks and jumps	Legs
3.	Pigeon	Walks and flies	Legs and wings
4.	Housefly	Walks and flies	Legs and wings
5.	Fish		Fins
6.	Any other		
7.			
8.			

What conclusions can you draw from the data given in Table 2.5?

Different animals have different types of movement. Animals can fly, run, crawl, walk, hop or jump, and so on. They use different body parts for moving from one place to another. They may use wings, legs, and other parts that help them to move. Here, we have identified animals based on the types of movement and the body parts used for movement. How can we group animals based on their movements? Additionally, many animals differ from each other in shape, size, structure, colour, and other features. Some of these features can also be used to group animals in various ways. Like plants, grouping of animals is important for understanding their diversity.

Know a scientist



Janaki Ammal (1897–1984) was an Indian botanist dedicated to environmental work and helped to document and preserve India's rich plant biodiversity. She played a key role in the 'Save Silent Valley' movement. As the head of the Botanical Survey of India, she initiated programmes to document the plant diversity of India.

© NCERT not to be republished

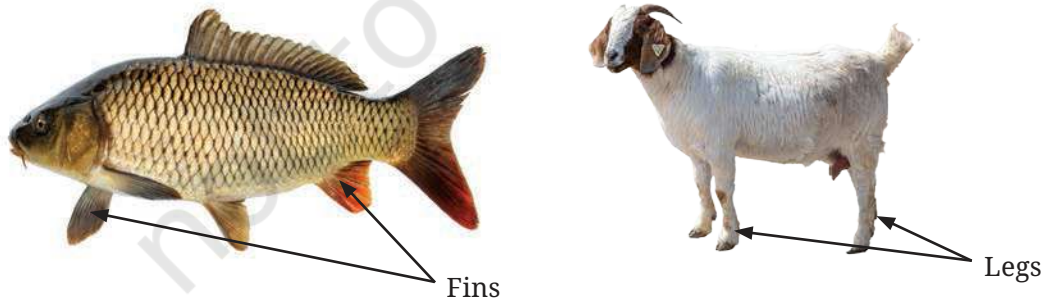
Success Story—Save Silent Valley Movement

This is a real story of a forest in the Palakkad district of Kerala. It is about preserving untouched beauty of a moist evergreen forest and its rich biodiversity. The now-famous Silent Valley was saved by a remarkable movement led by common people who were not even residing in the vicinity of the forest. The battle against the proposal of a hydroelectric dam across the Kunthipuzha river persisted for 10 years. At that time, people used all possible available means, such as widespread awareness programmes, letters to editors, articles in, newspapers, seminars, and petitions and appeals in court. The movement was successful in saving the Silent Valley.

More to know!

2.3 Plants and Animals in Different Surroundings

You might have observed during nature walks that different animals live in different surroundings. You have also recorded movement of animals in Table 2.5. Does the movement of these animals depend upon their surroundings? Let us consider fishes and goat as examples. Fishes live in water. They have streamlined bodies and fins for movement in water (Fig. 2.8a). Goats live in grassy areas and move with the help of legs (Fig. 2.8b). The sizes and shapes of animals also differ from one another.



(a) A fish swims in water with the help of fins

(b) A goat walks on the ground with the help of legs

Fig. 2.8: Body parts used by animals for movement

© NCERT not to be republished

Reprint 2026-27

Activity 2.10: Let us compare and analyse

- Look at Table 2.6. Recreate a similar table on the blackboard.
- List the names of plants and animals you or your classmates have observed in the regions given in the table or already know about. A few examples are given. You can add more.

Table 2.6: Animals and plants found in different surroundings

S. no.	In the desert	On mountains	In the ocean	In the forest	Any other region
1.	Camel	Deodar tree	Fish	Lion	
2.	Any other				
3.					



Fig. 2.9: Cactus with thick and fleshy stems in a desert

What are your observations regarding plants and animals found in various regions? Discuss your observations with your classmates.

You might observe from Table 2.6 that the plants and animals found in one kind of region are different from those found in another kind of region.

During a discussion in the classroom, Alex recalls that he observed cactus plants with thick and fleshy stems in the deserts of Rajasthan (Fig. 2.9). Maya shares that she saw deodar trees in the Himalayas of Himachal Pradesh (Fig. 2.10). These trees are conical in shape and have flexible and sloping branches.

Notice that these two types of plants found in different regions are different



Fig. 2.10: A deodar tree in the mountains

© NCERT not to be republished

from each other. Why is it so? Why does the biodiversity of a region vary from that of another? Let us find out.

There is very little water available in the deserts. A hot desert is typically very hot during the day and very cold at night. Therefore, you will find plants and animals in these areas that can tolerate and survive both the hot conditions during the day and cold conditions at night. The fleshy stems of plants found in the desert can store water and help them tolerate the hot conditions in these places.

The mountains in extremely cold regions experience frequent snowfall. In order to survive in such conditions, some of the trees have the ability to let the snow slide off easily. Conical shape and sloping branches of deodar trees enable them to do so easily.

You must have understood by now that the biodiversity varies from region to region because of diverse conditions.

Look at the images of a camel from the hot desert of Rajasthan (Fig. 2.11) and a camel from the cold desert of Ladakh (Fig. 2.12). What are the differences you observe between them? What advantages do these differences provide to these camels?

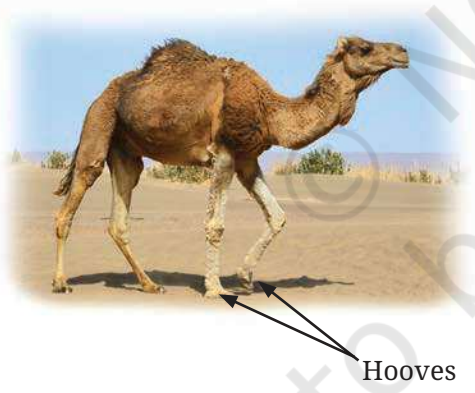


Fig. 2.11: A camel living in the hot desert of Rajasthan

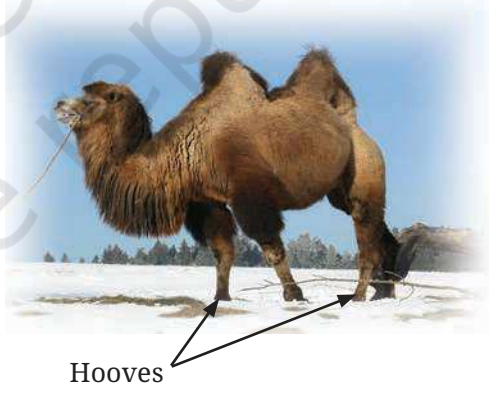


Fig. 2.12: A camel living in the cold desert of Ladakh

The camel of the hot desert has long legs with wide hooves. Alex shares that his grandmother told him that the long legs and wide hooves help these camels to walk on the sandy desert without sinking into the sand. On the other hand, the height and legs of camels of a cold desert are comparatively shorter than those found in a hot desert. These short legs allow them to walk easily in mountainous regions.

© NCERT not to be republished

In deserts, food is not available easily. Camels store food in their humps. Camels found in the hot desert have one hump each that helps them to survive during the scarcity of food. Camels found in the cold desert have two humps each. These two humps shrink in late winters because there is not much food available in the cold desert and they have to use food stored in their humps during that time. Moreover, they grow long hair from head to neck, which help them survive the cold winters of Ladakh.

What other features can help camels to survive in the desert?

Other students also start sharing their observations. Kashi from Rajasthan says that camels excrete small amounts of urine, their dung is dry, and they do not sweat. As camels do not lose much water from their bodies, they can survive for many days without drinking water.

Maya talks about seeing plants with beautiful bright flowers, **rhododendrons**, in the Shola forests of Nilgiris. Here, rhododendrons are of shorter height and have smaller leaves to survive through the heavy winds on mountain tops. However, Pema, who is from Sikkim, mentions that she has observed rhododendrons in the nearby mountains to be taller (Fig. 2.13). So, even plants such as rhododendrons may exhibit different features in different regions to survive the conditions of those regions.



Fig. 2.13: Different features of rhododendrons

Sagar tells his classmates that he went to the Andaman and Nicobar Islands with his parents for a special event. He saw huge whales and colourful fish in the ocean. His father explained that the streamlined body of fish helps them to swim in water.

© NCERT not to be republished

We have learnt that the plants and animals living in a particular region have special features that make them fit to survive there. The special features that enable plants and animals to survive in a particular region are called **adaptations**.

The shape of the deodar tree and the height of the rhododendron are adaptations that enable them to survive in the mountainous regions.

The place where plants and animals live is called their **habitat**. For example, the habitat of sea turtles is the sea or the ocean. The habitat of a camel is the hot or the cold desert, and the habitat of a rhododendron is the mountains. The habitat of plants and animals provides them food, water, air, shelter and other needs for their survival. Many types of plants and animals may share the same habitat. Habitat plays an important role in shaping the biodiversity of a region.

Know a scientist

Salim Ali (1896–1987) travelled across India to observe diversity in birds. He prepared a list of birds and documented their travel routes and habitats. He recorded the regions with high diversity of birds and took measures to conserve these regions. Keoladeo National Park in Bharatpur, Rajasthan and Ranganathittu Bird Sanctuary in Mandya, Karnataka are examples of regions he preserved. He wrote a landmark series of 10 books on birds of the Indian Subcontinent. He is referred to as the 'Birdman of India'. He was awarded Padma Vibhushan in 1976.



What are the different ways in which you can group plants and animals based on their habitats? One way is to group them into those 'that live on land' and those 'that live in water'.

The plants and animals that live on land are said to live in **terrestrial** habitats. Some examples of terrestrial habitats are forests, deserts, grasslands, and mountains.

© NCERT not to be republished

Reprint 2026-27

The plants and animals that live in water are said to live in **aquatic** habitats. Some examples of aquatic habitats are ponds, lakes, rivers, and oceans.

Some animals, such as frogs, can live in water as well as on land. These are called **amphibians**.

What would happen if the habitat of a plant or an animal is damaged? What would happen if a goat does not get grass to eat? Can a fish survive without water?

Check with your parents, grandparents, and neighbours to know about the plants, birds, insects or any other animal they used to see frequently in their childhood but do not see as often now. These changes often happen when habitats are damaged. The damage to habitats of plants and animals results in loss of their homes, food, and other resources. This leads to the loss of biodiversity.

Do you know?

The population of the Bengal Tiger, Cheetah, and Great Indian Bustard has declined in India due to loss of natural habitats caused by human activities. The Government of India has initiated several projects to conserve our biodiversity. 'Project Tiger' was initiated in 1973 to protect the declining population of the Bengal Tiger. The 'Cheetah Reintroduction Project' was initiated in 2022 to restore the population of the Cheetah. Similarly, habitats of the Great Indian Bustards have been declared as Protected areas in the states of Gujarat, Rajasthan and Maharashtra.



Bengal Tiger



Cheetah



Great Indian Bustard

© NCERT not to be republished

Reprint 2026-27

Traditionally Protected Forests: Sacred Groves

Sacred groves are undisturbed patches of forests. Their sizes may vary from quite small to very large. Sacred groves are found all over India. They are home to different kinds of plants and animals, including numerous medicinal plants. These are protected by the local community and no one is allowed to harm any animals and cut trees in these groves, or disturb the area. This way, sacred groves are a community protected treasure of biodiversity. Find out about the sacred groves in your region.



Sacred grove from the Western Ghats

More to know!

We must protect biodiversity to ensure our planet is full of life, helping plants and animals to survive and thrive.

Keywords

Adaptation
Amphibians
Aquatic
Biodiversity
Cotyledon
Dicot plants
Fibrous root
Habitat
Herbs
Monocot plants
Parallel venation
Reticulate venation
Sacred groves
Shrubs
Taproot
Terrestrial
Tree
Venation
Analyse
Compare
Create
Explore
Group
Observe
Record
Relate

© NCERT not to be republished

Reprint 2026-27

Summary

Key Points

- We are surrounded by a large variety of plants and animals. Such variety of plants and animals is a part of biodiversity.
- Plants and animals can be grouped on the basis of similarities and differences among them.
- Plants have similarities and differences based on features associated with roots, stems, leaves, flowers, and so on.
- The method of arranging things into groups based on their common features is called grouping.
- Plants can be grouped into herbs, shrubs, and trees based on their heights, types of stem, and branching patterns.
- Plants can also be grouped as dicotyledons (dicots) and monocotyledons (monocots) based on the number of cotyledons in their seeds.
- Monocots generally exhibit parallel venation in their leaves and possess fibrous roots while dicots typically exhibit reticulate venation in their leaves and possess taproots.
- Animals have different types of movement that can be a basis for their grouping.
- Biodiversity of different regions varies because of distinct environmental conditions.
- The special features that enable plants and animals to survive in a particular region are called adaptations.
- The place where plants and animals live is their habitat.
- Based on their habitats, animals and plants can be grouped as terrestrial and aquatic.
- Due to damage of their habitats, plants and animals lose their homes, food and other resources resulting in the loss of biodiversity.
- We must protect biodiversity to ensure that our planet is full of life, helping plants and animals to survive and thrive.

© NCERT not to be republished

Reprint 2026-27

Let us enhance our learning

1. Here are two types of seeds. What differences do you find among the roots and leaf venation of their plants?



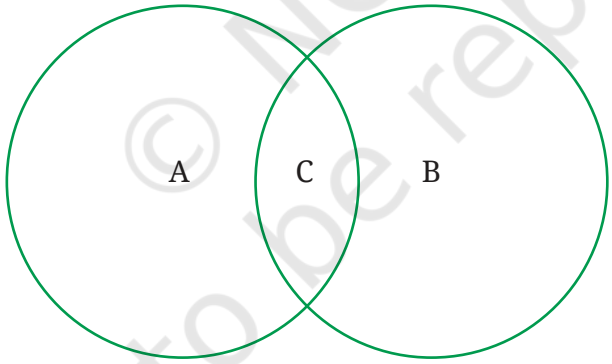
(a) Wheat



(b) Kidney beans

2. Names of some animals are given below. Group them based on their habitats. Write the names of aquatic animals in the area marked 'A' and terrestrial animals in the area marked 'B'. Enter the names of animals living in both habitats in part 'C'.

   Horse, Dolphin, Frog, Sheep, Crocodile, Squirrel, Whale, Earthworm, Pigeon, Tortoise



3. Manu's mother maintains a kitchen garden. One day, she was digging out radish from the soil. She told Manu that radish is a kind of root. Examine a radish and write what type of root it is. What type of venation would you observe in the leaves of radish plant?

4. Look at the image of a mountain goat and a goat found in the plains. Point out the similarities and differences between them. What are the reasons for these differences?

© NCERT not to be republished

Reprint 2026-27



(a) Mountain Goat

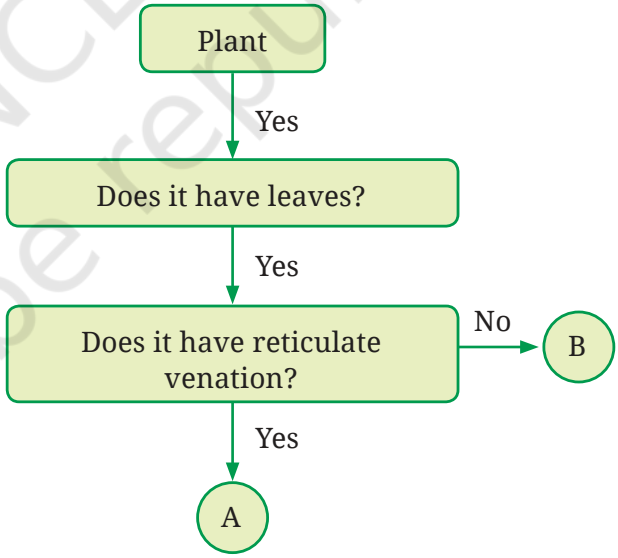


(b) Goat found in the plains

5. Group the following animals into two groups based on any feature other than those discussed in the chapter—cow, cockroach, pigeon, bat, tortoise, whale, fish, grasshopper, lizard.

6. As the population grows and people want more comfortable lives, forests are being cut down to meet various needs. How can this affect our surroundings? How do you think we can address this challenge?

7. Analyse the flowchart. What can be examples of 'A' and 'B'?



8. Raj argues with his friend Sanjay that "*Gudhal* (hibiscus) plant is a shrub." What questions can Sanjay ask for clarification?

© NCERT not to be republished

Reprint 2026-27

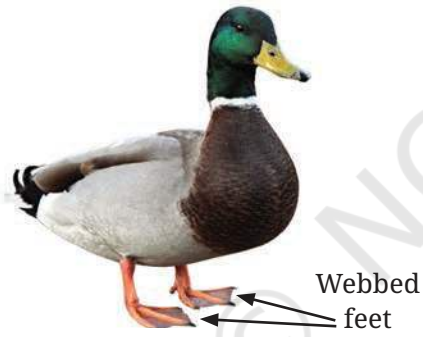
9. Based on the information in the table, find out examples of these plants for each group.

Group	Type of seed	Type of root	Examples
A	Dicot	Taproot	
B	Monocot	Fibrous roots	

(a) What other similarities do plants of group A have?

(b) What other similarities do plants of group B have?

10. Observe the labelled part of a duck in the picture given below. What differences do you observe in the feet of the duck compared to the other birds? Which activity would the duck be able to perform using this part?



(a) Duck



(b) Pigeon

Learning further

- Read about one Indian scientist or a wildlife biologist who is working towards protection of India's biodiversity. Prepare a brief report.
- Explore the contributions of Divya Mudappa, Usha Lachungpa, Ghazala Shahabuddin, Nandini Velho, Vidya Athreya, Uma Ramakrishnan and Divya Karnad towards biodiversity in India. Prepare a report of the work done by any three of them.

© NCERT not to be republished

Reprint 2026-27

- Label the plants in your school with their local names with the help of your teacher or the gardener. List them in your notebook.
- With the help of your teacher, plan a field visit or a nature walk. Record your observations. Prepare a class biodiversity register by consolidating the observations and notes of all the students taken during the field visit or nature walk.
- Find out about 'Project Tiger' and other similar projects initiated in India to protect our biodiversity. Prepare a presentation for your class.
- Divide your class into groups of six students each. Initiate a discussion in the class on how you can protect biodiversity around you. Prepare a group-wise report that includes suggestions given by members of each group.
- Interact with elders in your family or neighbourhood to find out various plants and animals that they see now but were not seen earlier and vice-versa. Collect pictures of these plants and animals and paste them in a scrapbook. Find out more about them from your teacher.

© NCERT not to be republished

Reprint 2026-27