

Chapter 1

LIFE ON EARTH

In chapter 'Our Earth' of class VI you had read that all living organisms (plants and animals) have three basic requirements. No organism can survive without these. These three essential things are food, water and air.

Why do organisms need these things? Write in your own words. You may also consult class VI book.

Organisms live in different types of environment. Some live on land and some in water. Organisms on land are also of different kinds. Organisms easily get essential things required for living in most places on the earth, and they live in such places in large numbers.

On the other hand, there are some places on the earth where living conditions are very harsh. Desert is one such place. In the desert there is sand everywhere and water is scarce. There are no shady trees in deserts and the days are very hot. Nights are very cold as sand gets cold during night.

In the same way, in cold regions such as north and south poles and on the peaks of mountains, there is always snow and these regions are very cold. A very small number of organisms are found in such harsh conditions.

You have read about the geographical conditions in your district and state. You know that different types of environment are found in different parts of Chhattisgarh. Some parts of the state are plains, others have mountains, some have lakes and some have dense forests.

Our country is much bigger than Chhattisgarh. A lot of diversity is found in the environment of our country. India is surrounded by oceans on three sides and in the north there are Himalayas. Himalayas is a range of many small and big mountains. Small mountains have dense forests and the high mountain peaks are covered with snow. A part of Rajasthan is desert. There are vast plains in Uttar Pradesh and Bihar.

If we look at the whole earth, we find a greater variety of environments. You would have read that earth has two poles – north and south. Both these poles are very cold and their surface is always covered with snow. Apart from these, huge oceans, vast deserts, dense forests, mountains, plains etc. are found on the surface of the earth.

You know that organisms are connected to each other through food chains. A food chain always begins with a plant. Can you tell why?

Let's now travel around different types of environments and find out the conditions in which plants and animals live, their relation with each other and from where and how do they get things required for life.

Let us first go to the environment most familiar to us –our own surroundings. You would have seen *peepal* trees growing from the walls of old houses, monuments, etc.

These trees get plenty of oxygen from the air for respiration and carbon dioxide present in the air helps them in making their food. But where do they get water and minerals from? Can you guess?

Can you think of and write a food chain beginning with *peepal* tree?

You might have seen that often in the grains of wheat and rice, small insects called weevil (*ghun*) are found. These insects easily get air and food but how do they get water? Lizard, *ghun* and other animals are not seen drinking water because they get sufficient water from the food they eat and thus do not need to drink water.

Can you make a food chain in which there is Weevil (ghun)?

Try to find out from where do plants and animals around you get food, air and water.

We will now go to the historical city of Jaisalmer in the state of Rajasthan. Jaisalmer is in the middle of a desert and when we come out of the city we find sand all around. There are thorny bushes in place of big trees. A tree similar to *babool- khejdi* is found in abundance in Rajasthan. Apart from this, *cactus (nagphani)* and rajasthani grass are also found. These plants are the first links of food chains here.

During the day it is sunny and so hot that no animals can be seen. In the evening many small and big animals come out in search of food. Desert lizards eat insects walking on the sand, and the rats who make burrows in sand also come out in search of food. Hawks and owls prey on these lizards and rats.

Foxes living in the desert also hunt these rats and birds. Many organisms are found even in dry environment like a desert. These organisms are also linked with each other in many ways forming multiple food chains.

Now we will go very far away from our home – to the oceans. Oceans have so much water that they never dry up. Three-fourth of earth's surface is covered with sea water and the rest is land. From this you can estimate how much water is there in the oceans.

Many types of algae, small and big plants keep floating on the surface of the ocean. These plants make food from carbon dioxide dissolved in water in the presence of sunlight. They get water and minerals from the ocean. They respire by taking oxygen from the air dissolved in water. These plants are found in large numbers in the oceans and are the first links of a long food chain. Even big animals living in oceans are dependent on these plants. Small animals swimming in water eat these plants. These small animals are eaten by animals bigger than them and by fish. Smaller fish are eaten by still bigger fish and the bigger fish are eaten by even bigger fish. Many big and small fishes, mammals and birds are found in the oceanic environment. Smaller organisms are eaten by organisms bigger than them – thus making long food chains. Not only the animals in the sea, but other animals living on the shores of the oceans are also dependent on these chains. We will see an example of this later.

After moving around the ocean, we now move to the north pole, called the Arctic region. The region is so cold that it is covered with a thick coat of snow almost all the year around. During summers, for a short time, a part of the snow melts and some small plants and algae grow. Rats, deer and rabbit are the main herbivorous animals found in this region. Most of the animals found here are white in colour, which makes it difficult to see them on the white snow. The common carnivorous animals of this region are bear, wolf, fox and owl. Bears found in Arctic region are white in colour and are huge in size (fig. 1.2). They are called polar bears. Think and tell why these bears

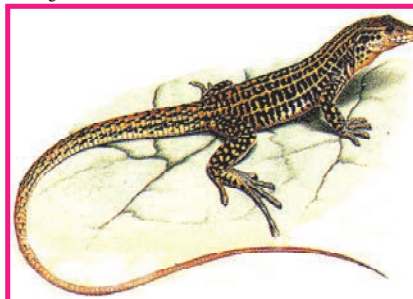


Fig. 1.1 Desert Lizard



Fig. 1.2 Polar Bear

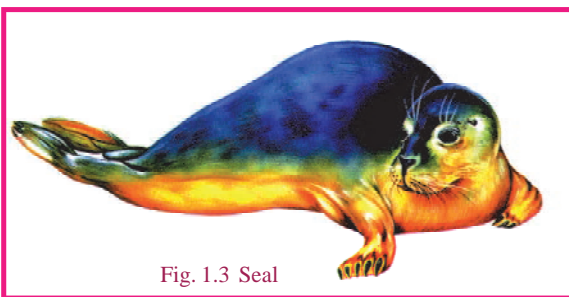


Fig. 1.3 Seal

are called polar bears? Seal, a mammal, is the main food of polar bears (fig. 1.3). Seals are similar to dogs in appearance. They can swim in the sea and hunt for fish. Polar bears catch the seals when the seals come on the shore to rest. The interesting part is that the food chain starting in the ocean ends on the earth with polar bears.

Ocean plants and algae → small animals → big animals and small fish →
big fish → seal → polar bear

Now from polar regions we move to a country named Indonesia located towards the east of India. This country does not have plain land like India because it is made up of about thirteen thousand small and big islands. One of the big islands is Borneo. This island is very big and has huge caves in which millions of bats live. (fig. 1.4). These caves are so deep that sunlight cannot reach inside and they are always pitch dark. Bats hang on the walls of the caves and come out in the evening to search for food. Their food is small insects flying in the air, nectar of flowers and fruits.



Fig. 1.4 Bat



Would there be plants growing inside these caves? Give reasons

Why would bats live in caves where sunlight does not reach and no plants are found? They do this for their self-defence. During the day, they remain safe in the dark caves from predators. Still, in the evening, when they come out of the caves, predatory birds like hawks and owls catch and eat them.

Most of the food chain is outside the caves and only one link is inside. Like food, the bats get water only when they come out of the caves at night.

Plants → insects → bats → hawks and owls

We have seen that our earth is very vast and organisms live on it in varying conditions. In the examples given above, we have seen that all organisms live in an environment where they get the three things essential for life. The place where living beings live and reproduce is called their habitat. Body structures of organisms in different habitats gets modified so that they can live in their habitat without any difficulty. This is called adaptation. For example, organisms living in a desert can survive on very little water and they can tolerate very hot weather. Animals living in Arctic region have a lot of hair on their body and can tolerate very cold weather. Once an organism gets adapted to a certain habitat then it cannot survive in a different habitat. Organisms around us cannot survive in a desert or in the Arctic region. Similarly organisms living in the desert or in the Arctic region cannot survive in our habitat.

You have seen that there are big differences in the body structure of plants and animals found on earth. These differences are referred to as diversity in the living world.

As you know that various living and non-living components are in our environment. We find good co-ordination among them. Due to this balance we live in our earth without any difficulty. If the balance among various components and organisms is disturbed environments will be polluted and living beings face difficulty. It is necessary for us that we should perform our duties and take the responsibility to save our environment, wild animals and forests, so that a better co-ordination can be created among our family, society and environment for a peaceful life without disturbing the balance of nature.

Good habits of sanitation at public places

A large amount of wastes and discarded materials are generated at crowded places like railway stations, bus depot, airports, hospitals, fairs, gatherings etc. If they are not disposed of properly, epidemics may break in. Hence we should strictly enforce the standards of cleanliness and sanitation laid down by our government. However, all of us can contribute in maintaining sanitation at public places. We should not scatter litter everywhere but should throw them in dustbins only. Toilets should be adequately flushed after use. Proper cleanliness should be maintained around the area surrounding the taps and water bodies.

We should be concerned about the health and hygiene of our environment and we must incorporate cleanliness as a habit in our daily life.

**Answer these****1. Fill in the blanks**

- Compared to a country there is more found in the earth's environment.
- In comparison to a normal environmentorganisms are found in desert and cold regions.
- Many long are found in oceans.
- Some animals don't have to drink water because they get sufficient water from

**We have learnt**

- Living organisms need food, air and water to live.
- Living organisms live in different environments. Living beings are found in large numbers at places where they can easily get things required for life.
- Desert and polar regions are respectively very hot and very cold. Therefore, the number of living organisms found in these places is very small.
- Living organisms are connected to each other through food chains.
- A food chain always starts with a plant.
- Food chain in a desert –
Plants → desert insects → lizards and rats → hawk and owl
- Food chain in a polar region
small plants and algae → very small animals → bigger animals and small fish →
big fishes → seal → polar bear
- Other food chain
Plants → insects → bats → hawks and owls
- On earth organisms live in different conditions.
- The place where organisms live and reproduce is called their habitat.
- Body structures of living organisms living in different habitats gets moulded so that they can live in that habitat without any difficulty. This is called adaptation.

**Questions for practice****1. Fill in the blanks**

- The three essential requirements of life are -
....., and
- In deserts, days are very and nights are very
- Living organisms are linked to each other through
- The place where living organisms live and reproduce is called
- Due to living organisms live in their habitat without any difficulty.

2. Identify true and false statements from the following and correct the wrong statement and rewrite it.

- There is water all around in a desert.
- Sea plants respire by taking oxygen from the air.
- Major carnivorous animals of Arctic region are rats, deer and rabbit.
- Animals living in the Arctic region have hair on their body.
- Organisms living in Arctic or desert region can live in our habitat.

3. Answer these –

- Why don't we see lizards and weevil (*ghun*) drink water?
- Where does the tree growing from a wall get water and minerals from?
- Why are most of the animals found in arctic region white in colour?
- Think of and write a food chain which starts in the ocean but ends on earth.
- Make a food chain each for the desert and for the ocean.
- Living organisms get modified according to the environment in which they live. If the environment on the earth became the same everywhere, how would be the living organisms effected? Write in your own words.
- Write in your own words how bats found in the caves are dependent on the plants growing outside the caves.
- How would polar bears be effected if all the algae on the surface of the oceans disappear?



Do these also

- With the help of magazines, your teachers and friends, find out about the major vegetation of Chhattisgarh. Paste the photographs of the major plants in a scrap book. Have a discussion and put up an exhibition in your class and society.
- The state animal of Chhattisgarh, 'wild buffalo' (*Bubalus bubalis*) is found in Udanti sanctuary and state bird 'Pahari mynah' (*Gracula indica*) is seen in parts of Bastar division. With the help of magazines, your teachers and friends, find out where the following animals are found in Chhattisgarh – Tiger, Leopard, Deer, Stag.
Collect pictures of these animals and paste them in a scrap book. Display this book on special occasions of your school. From the pictures you collect make food chains which have tiger, leopard, deer, stag etc.
- Due to some activities of human like cutting of trees, deforestation, hunting, capturing of birds for entertainment, the life of our state bird 'pahari mynah' and other birds is endangered. Is it happening in your area also ? make a report of it and spread awareness in your school and society.

