4. Environmental Balance

Try this.

Ask the elders in your family to take you to a riverside or to a lake or stream.

Observing the various living things

Make a list of all the living things you see there. If you do not know the names of any of the living things you see, make a note of them describing their shape, colour, sound, shelter, etc. Or, draw their pictures. Count how many types of living things you see.

Now repeat the activity near your house, in the school garden or in a field.

Can you tell?

(1) In the course of your observations, did you notice any signs of the presence of living things though the living things themselves were not seen? For example, did you notice any partly eaten fruits or shells, fallen feathers, animal tracks, dung, droppings, nests, cocoons, eggs, honeycombs, etc.?

(2) Could you observe any micro-organisms?

(3) How many types of living things did you see at the places you visited? Do you think you saw all the kinds of living things that belong there? Did you see the same living things at various places or different ones?

The variety we see in all the living things that belong to a particular area is called the 'biodiversity' of that place.

Can you tell?

Which one of the places you visited shows greater biodiversity?

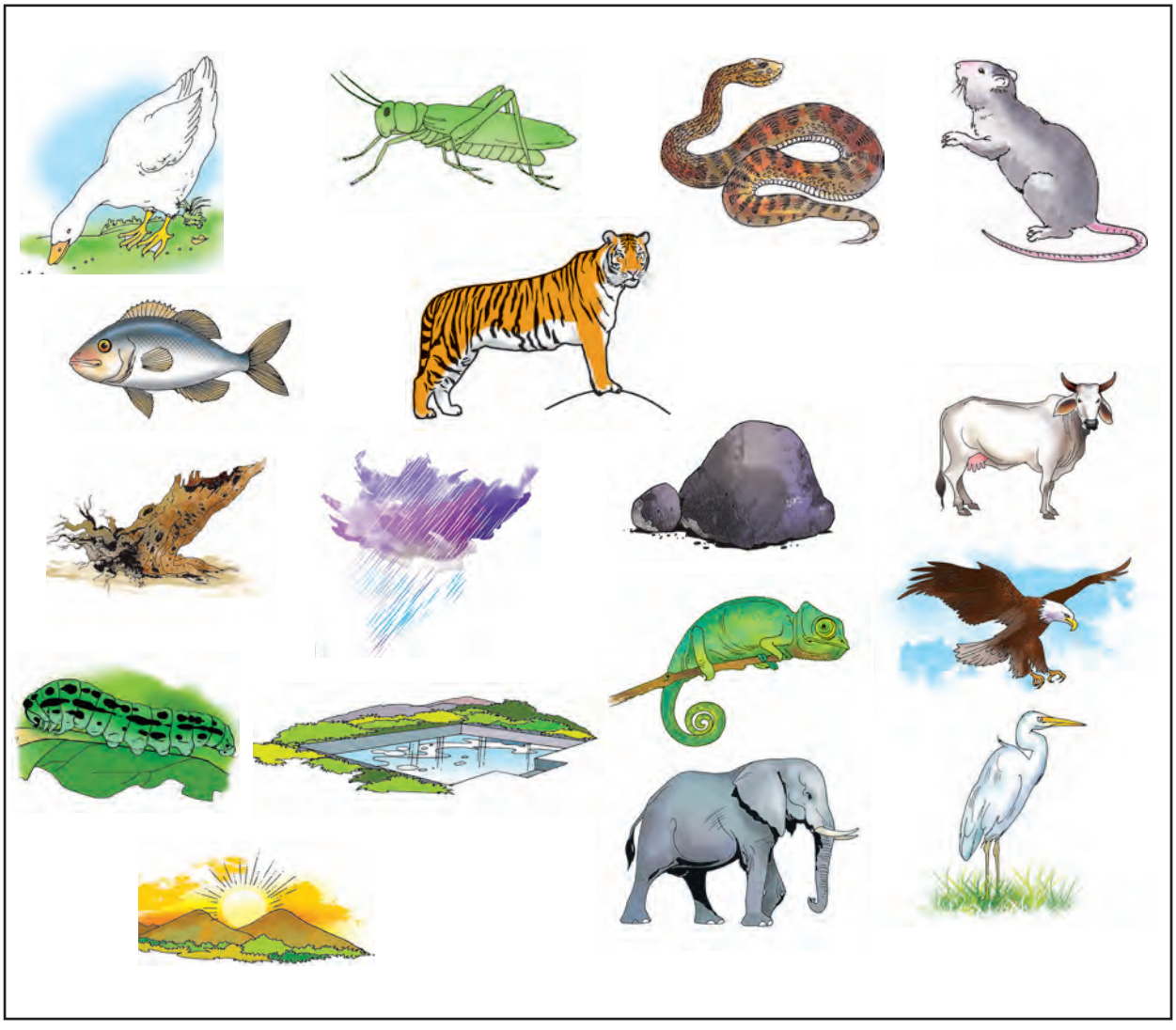
To study the biodiversity of a place, scientists make a large number of observations. They make these observations in different conditions such as day and night, in different seasons, etc. They use special devices to make observations of living things that are found at great heights or depths as well as of micro-organisms. Observations of many scientists are brought together and studied again. Only when all such efforts are made over a long period of time can we be sure of the biodiversity of a place.

The environment

The surroundings and the conditions in those surroundings which affect the life of the organisms there, are together known as their environment. It includes many components such as sunlight, air, water, soil, plants and animals, etc.

Living and non-living things are dependent on each other. There is a lot of give and take or interaction between them. Environmental Science studies these interactions.

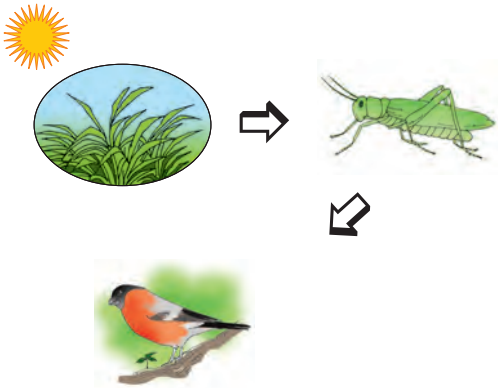
Look at the pictures of the living and non-living things shown below. Discuss the mutual relationships between these various factors of the environment.



Living and non-living factors of the environment

The food chain

Look at the pictures below.

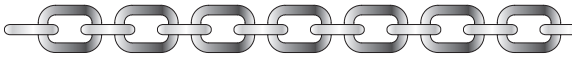


Grasshoppers eat grass and leaves. Birds eat grasshoppers.

Can you tell?

(1) Who eats birds?
(2) What is the food of plants?

Look at the picture below.



There are several links in this chain. If the links were to separate from each other, could they be called a chain? Even though each link is a complete object, it is joined to the links before and after it. If any link comes loose, the chain is broken.

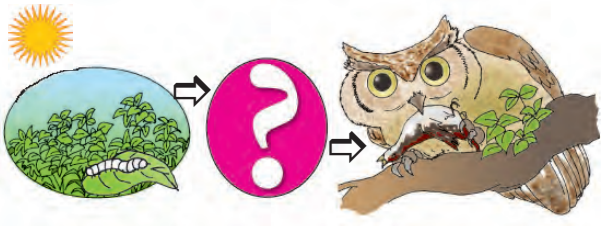
In the first picture, we see the sun, some plants, a grasshopper and a bird. They are all connected. Each of the components – plants, grasshopper, bird – is food for the next one. That is why we say that they form a chain. Such a chain is called a food chain. Each of these components is a link in a food chain.

Can you tell?

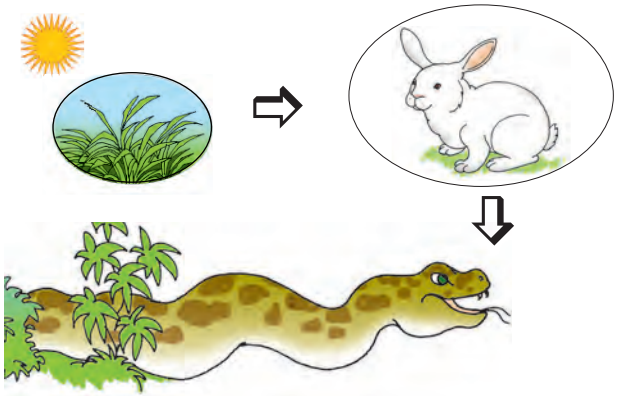
Look at the pictures.
What is the deer's food?

What is food for the tiger?

The picture below shows another food chain. You have to guess the missing link in it. Look at the first and third pictures. Think of the connection between them and complete the chain.



In nature, there are many food chains. If one of the links in a chain becomes extinct can the food chain last?



The food web

Observe the various food chains shown in the picture below.

Can you tell?

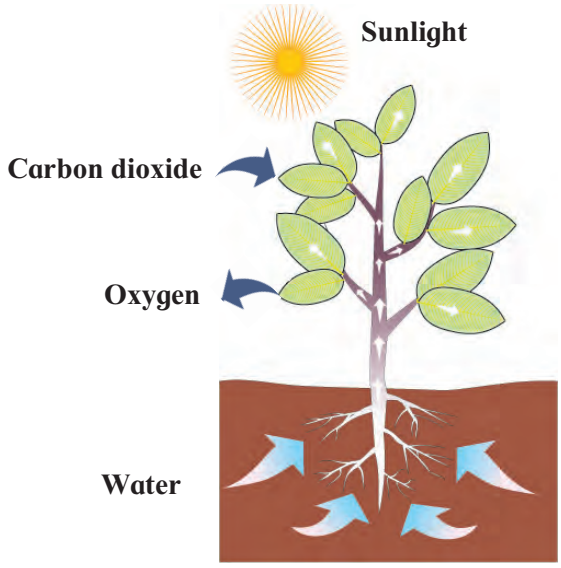
Find the different food chains of which the worm and the mouse form a link.

One living thing can be a part of a number of food chains. That gives rise to a food web in nature.

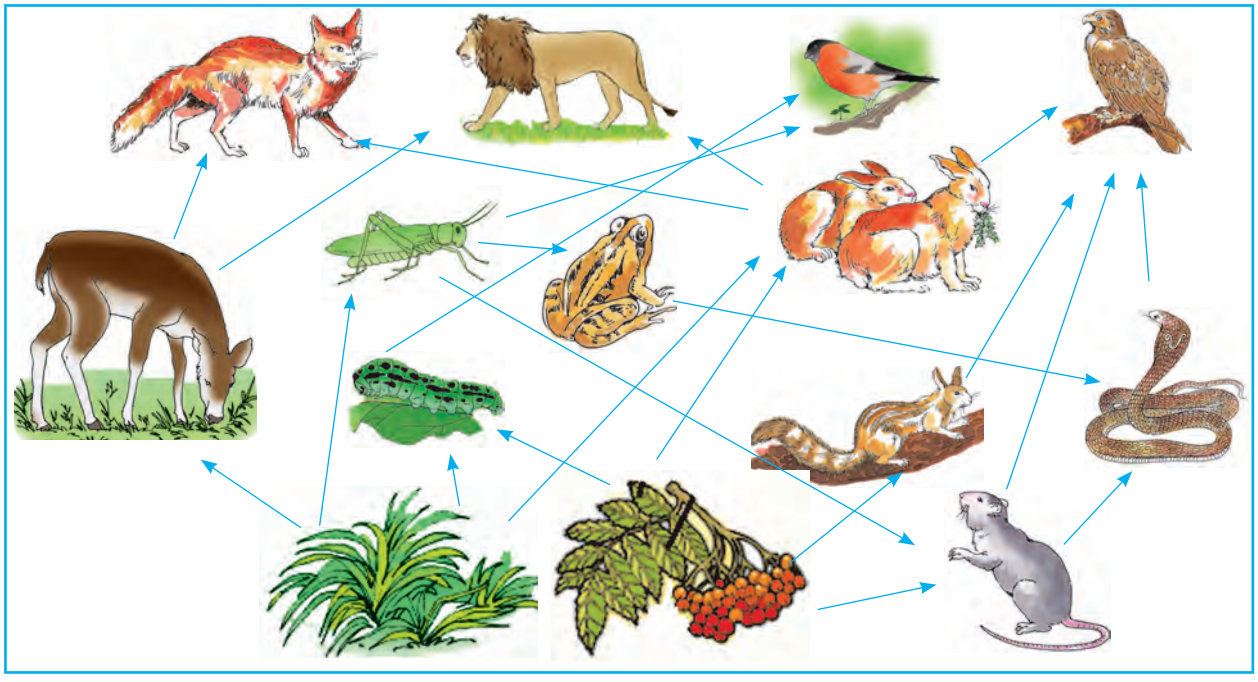
The most important food in food chains – plants

Every living thing gets its food from the environment.

Many animals in the environment eat only plants. Other animals eat the animals that live on plants. But plants make their own food in the presence of sunlight using water and the carbon dioxide from the air. It means that plants are the main support of every food chain.

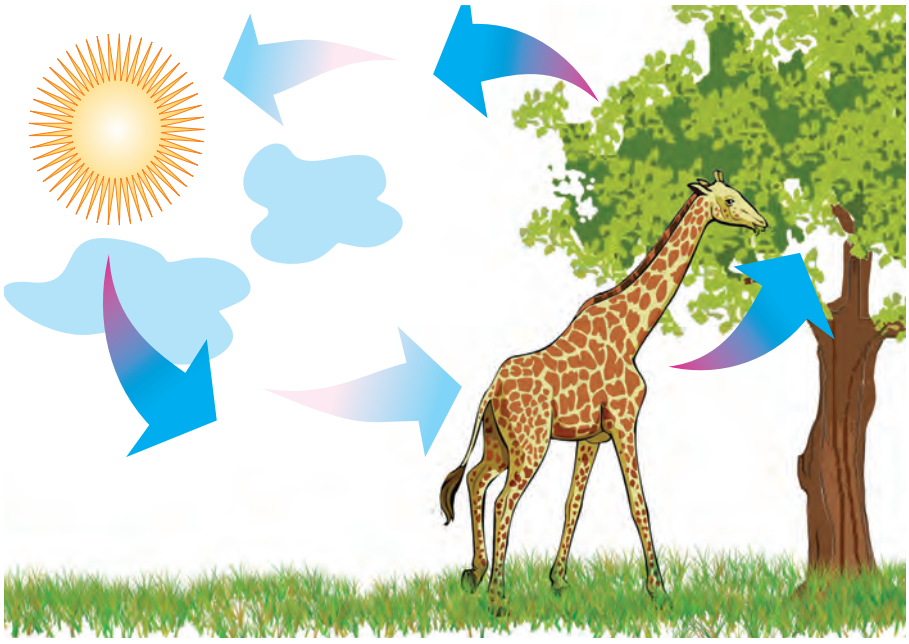


A plant



A food web formed by the interlinking of several food chains

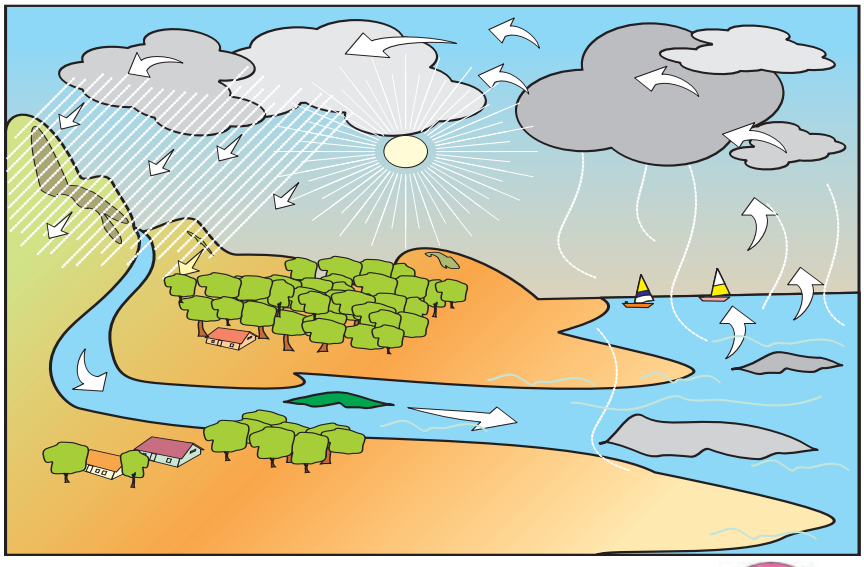
Environmental balance



There are many food chains in our environment. Because of these food chains, every living thing gets the food it needs and therefore continues to live. Micro-organisms living in the soil help the process of decomposition of plant residue, dead animals, excreta, etc. As a result, substances that help the growth of plants are formed and get added to the soil. Plants use them for their growth.

Thus plants use substances in the soil for their growth and when plants and animals die, the decomposition of their remains adds these substances to the soil once again. This is an important cycle in the environment.

Also, living things get a continuous supply of water because of the water cycle.



Living things use oxygen from the air for breathing and give out carbon dioxide gas. Plants use the carbon dioxide from the air for making their food. Oxygen is given out in this process and gets added to the air again. This too is a cycle in nature.

There are several other such cycles in nature. Thus, there is interaction amongst living things and between living and non-living things in nature. The interactions go on continuously. This helps to maintain the food chains in the environment. When the various cycles in the environment go on uninterrupted, environmental balance gets maintained.

Always remember –

For the existence of living things, it is important that environmental balance is maintained.

What we have learnt –

- There are innumerable types of living things on the earth.
- There is interaction between living and non-living things in the environment.
- Different kinds of animals, plants and micro-organisms are found in different regions of the earth.
- The water cycle, various other cycles and food chains in nature help to maintain the balance in the environment. This balance has been maintained for thousands of years.

Exercises

1. What's the solution ?

We have to remove insects from the grain without using insecticides.

2. Use your brain power !

Make up a food chain :

Frog, kite, worm, snake, grass.

3. Answer the following questions.

(a) What is a food chain ? Give an example of it.

(b) How is the balance in the environment maintained ?

4. What substances in the soil are useful for the growth of plants ?

5. True or false ?

(a) Micro - organisms form a part of the environment.

(b) It is necessary to maintain biodiversity.

(c) A grasshopper eats birds.

Activities

1. Find out more about the birds you see in your surroundings.
2. Make up your own slogans about maintaining environmental balance.

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