

THE ANIMAL KINGDOM

Chapter 2



There are many living creatures around us - some large, some small. Which is the largest animal you have seen? Which is the smallest?

In this chapter we shall study some animals that are easy to capture and bring to the class. The aim is to learn more about how to observe and study animals. We shall also look at the different parts of their bodies and study their structure.

We have chosen three animals for observation and study - earthworms, grasshoppers and fish. You could study other animals on your own using the methods you learn in this chapter. We shall also go on a field trip to see where these animals live, what they eat and how they behave in their natural surroundings.

A day before you begin this chapter, your teacher will ask you to bring an earthworm, a grasshopper and a fish to school. It is best if you bring these animals alive to the classroom.

**Where would you look for earthworms, grasshoppers and fish?
How would you catch them and bring them to school? (1)**

Studying an earthworm

The earthworm you bring should be as large as possible. Examine it carefully and answer the following questions:

Touch its skin. Is it dry or wet? (2)

What is its colour? (3)

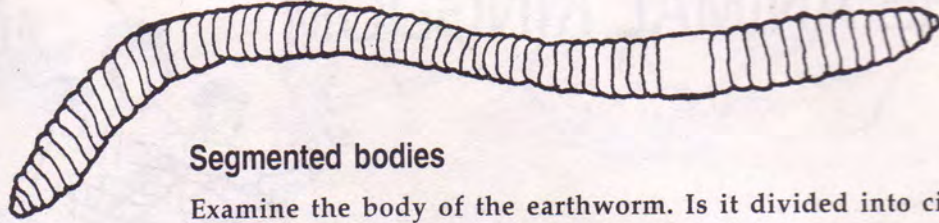
Is the skin on different parts of its body of different colours? Is the part which is usually in contact with the ground any different in colour from the rest? Try to explain any differences you see. (4)

Think of other animals. Is there a difference in colour between their upper and lower surfaces as well? (5)

Watch the earthworm carefully as it moves. It does not have legs. How does it move? (6)

If you find it difficult to answer Question 6, go to the end of this chapter. Three ways in which animals without legs crawl forward are shown. Observe how the earthworm moves and check which of these three methods it uses.





Segmented bodies

Examine the body of the earthworm. Is it divided into circular bands? (7)

A body that is divided into bands or rings is called a **segmented body**.

Make a special effort

To study your earthworm more closely, place it in a transparent glass bottle, plastic jar or beaker. Use a magnifying glass to carry out the following observations:

1. Find the circular bands on the body of the earthworm that are slightly different in colour to the other bands. It is easy to see this with a large earthworm.



How many segments are there from the mouth of the earthworm to this darker band-like structure? (8)

The position of this structure - i.e. the number of segments between it and the mouth of the earthworm - is always the same.

This darker coloured band is related to the reproductive system of the earthworm.

2. Examine the mouth of the earthworm.

Can you see its mouth opening and closing? (9)

3. Hold the bottle or beaker in which the earthworm is kept towards the light. Look at the earthworm's body. You will see a long tube inside containing small balls of earth in some places. This long tube is the alimentary canal or food tube of the earthworm and the small balls are the food it has eaten.

Draw a diagram of the earthworm in your exercise book showing all the structures you have seen. (10)

Some interesting information about earthworms

Experiments have shown that an earthworm shies away from light. If a bright light is shone on the front part of its body, it moves away from the light. The earthworm does not have eyes. So how does it know if light is shining on it or not?

Actually, the earthworm has some cells in its skin that are sensitive to light. These cells are concentrated in the upper part of its body. There are no such cells in the lower part of its body.

Studying grasshoppers

What is the colour of the grasshopper you have brought to class? (11)

Is there a difference in colour between the upper and lower surfaces of its body? (12)

Look at the picture of the grasshopper given below and count the number of segments its body is divided into. (13)

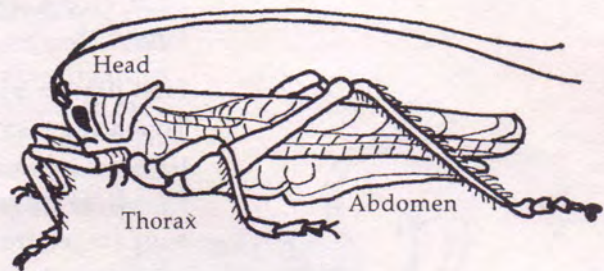
Draw a picture of your grasshopper in your exercise book. Compare your diagram with the one given here and then label the parts of the body in your diagram. (14)

Is the body of the earthworm also segmented like this? (15)

Name two other insects whose bodies are segmented like the body of the grasshopper. (16)

The first segment : The head

Examine the head of the grasshopper with a magnifying glass. You will see two long antennae emerging from the front of its head. These antennae are sensitive to changes in temperature and the smells that occur around the grasshopper.



Identify the antennae in the picture you have drawn. (17)

Do the antennae move or are they rigid? (18)

Do the antennae have joints? (19)

Touch an antenna with a twig. What does the grasshopper do when its antenna is touched? (20)

Which other animals have antennae? (21)

Examine the eyes of the grasshopper with a magnifying glass. Do they have eyelashes? (22)

The second segment : The thorax

The part of the body from which the legs and wings of the grasshopper emerge is called the thorax.

How many legs does a grasshopper have? (23)

Are all the legs the same length or are some longer than the others? (24)

Is there hair growing on the legs? (25)

Do the legs have joints? (26)

Have you ever seen an insect that does not have joints in its legs? (27)

If an insect did not have joints in its legs, what problems would it face? Discuss this in class before writing your answer. (28)

Make the following observations about the wings of the grasshopper:

1. How many wings does a grasshopper have?
2. Are the wings transparent or opaque?
3. Are the wings coloured or colourless?
4. Is there any pattern visible on the wings? (29)

The third part : The abdomen

The entire portion behind the breast is called the abdomen.
Examine the stomach of the grasshopper with a lens.

Does any organ emerge from this portion? (30)

Is the abdomen segmented or not? (31)

Studying a fish

Each group should bring a fish. Sit with your group and study your fish.

First draw a picture of the fish in your exercise book. (32)

Touch the fish.

Is the skin smooth and slippery? (33)

Run your finger down the fish from its head to its tail. Then run your finger from its tail to its head.

Does it feel the same in both directions? (34)

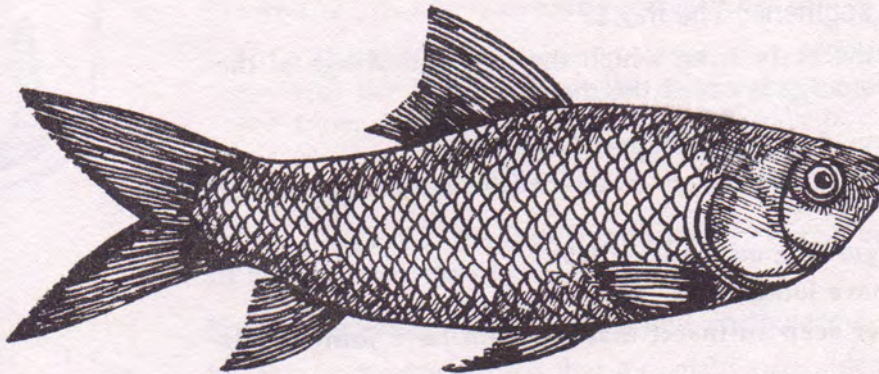
Which structures on the skin could you identify by running your finger up and down the body of the fish? (35)

If you did not feel anything, use your lens to look closely at the skin.

The structures that you see are called **scales**.

Is the entire body of the fish covered with scales? Draw the scales in your picture of the fish. (37)

Examine the eyes of the fish. Do they have any eyelashes? (38)



Open the mouth of the fish and see whether it has teeth or a tongue. (39)

Are there nostrils near its mouth? (40)

A special structure

Open the lid-like structure near the mouth of the fish. You will see red-coloured structures inside. These are the **gills** of the fish. The fish breathes through its gills. In a live fish, the gills are red in colour. The gills of a freshly caught fish are also red. But once a fish dies, its gills slowly become darker and duller. A person

who buys fish can tell whether the fish is fresh or not by looking at its gills.

Discuss the similarities and differences between the fishes brought to class by the different groups. List these similarities and differences in your exercise book. (41)

A field trip

You learned how to study animals by looking at three different kinds of animals. To know more about the animal kingdom you should go on a field trip with your teacher and classmates. You will be able to learn more about animals by observing them in their natural habitat. You could catch these animals and if they are small enough, you could put them in a broad-mouthed jar for some time so that you can observe them more closely. After you have studied them you should return the animals to their habitats.



Preparing for the field trip

1. Before leaving on your field trip, copy Table 1 in your exercise book. Take it with you on your trip.
2. Each group should take a magnifying glass, polythene bags and a broad-mouthed glass bottle.

A WORD OF CAUTION

1. Don't catch creatures like snakes and scorpions during your field trip. Don't put your hand in any hole you see in the ground.
2. It is not necessary to kill an animal to study it.

Students should observe different animals. For example, one could study a bird and another, an insect. In this way, the class can collect observations on many different animals. Record your observations in the table. If you notice something unusual about any animal, make a note in your exercise book. Thus, you can gather a lot of information about animals.



Where should you go on a field trip? You could choose a field, orchard/garden or river/pond near your school. Your aim should be to observe as many animals as possible.

Table 1

Name of animal	Where it lives	Lives alone or in a group	What it eats	Number of legs it has	Number of wings it has	How it moves	The sound it makes

After you return to the classroom

Arrange the information you have collected in the following groups:

1. Animals with wings
2. Animals that crawl (42)

Did you come across any animal that does not have joints in its legs? (43)

What animals eat

Study the entries in your table and state whether all animals eat the same kind of food. (44)

Which are the animals in your list that eat only plants, trees or their products (fruit, flower, grain, the nectar of flowers, etc.)? (45)



Such animals are called **herbivores**.

Which are the animals that eat other animals or their eggs? (46)

Such animals are called **carnivores**.

Name those animals that eat plants, trees or things obtained from them as well as other animals. (47)

Such animals are called **omnivores**.

Are there some animals in your list that get their food from the bodies of other animals without killing them?

Such animals are called **parasites**.

List the names of some parasites. (48)

If your table doesn't contain any such animal, ask your teacher and add some examples. (49)

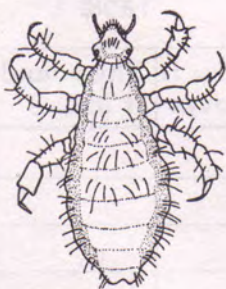
What are the differences between carnivores and herbivores? (50)

There are some animals that eat the flesh of dead animals.

These animals are called **saprophytes**.

Give two examples of such animals. (51)

Use the information in your table to make a large chart. Draw pictures of each animal, giving its name, what it eats and where it lives. Display the chart in your classroom. (52)



Lice

Our body : An abode for animals

We see many animals around us. But do you know that several animals use our body as their home? Some live on our body while others live inside it. Some harm our body, some just live there while some others actually help our body in different ways.

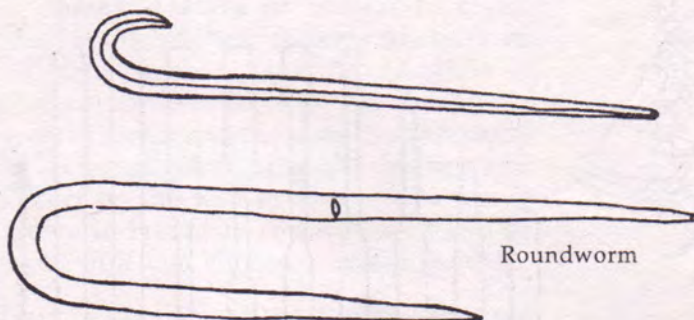
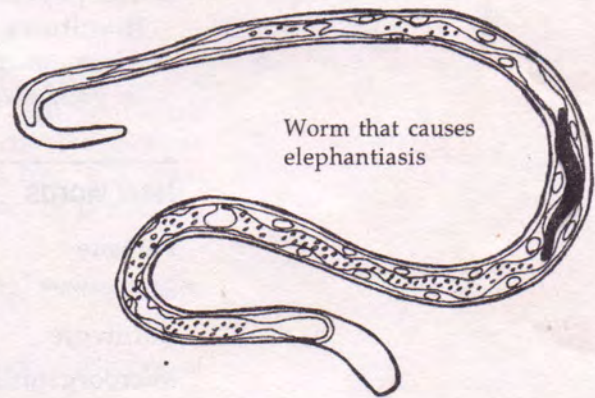
You may be familiar with lice. They live in the hair on our head. They move from the head of one person to another. They suck our blood. Other lice-like animals live in other parts of our body - like the hair on the chest of males.

Many people suffer from dandruff. Dandruff is caused by a fungus. This fungus is a saprophyte. It causes the upper layer of the scalp to become dry and flake off. These flakes are called dandruff.

Some **microorganisms** also live on our skin. They are so small you cannot see them. You find them under your nails, in the pits (follicles) of the hair on your body, under your eyelashes and in several other places. If you suffer a wound, these microorganisms flourish in it. They form the pus in the wound.

Some animals live inside our body. It is said that there are hundreds of thousands of microorganisms in our intestines. They do not harm us. In fact, some of them produce vitamins for the body. But some harmful microorganisms do enter our body. You may have heard of children suffering from worms in their stomach. The roundworm is one such worm. Other similar worms also find their way into our alimentary canal. They consume the digested food there.

Some microorganisms cause diseases when they enter our body. Some examples include the malaria parasite, TB **bacteria**, pneumonia (pneumococcus) bacteria, polio **virus**, etc. These microorganisms reside in different parts of our body and make it their home. For instance, the TB bacteria resides in our lungs.



Some questions for revision

1. Which of the following is true or false? Mark them accordingly.
 - a) The cockroach senses changes in its environment such as smell, temperature etc. with its antennae.
 - b) Fish have scales on their heads.
 - c) Herbivores and carnivores are together called omnivores.
 - d) Fish have eyelashes.
 - e) The silverfish does not have joints in its legs.
2. Make a list of insects that live in our homes. Examine these

insects with a magnifying glass. Group them according to the number of legs they have.

3. List 10 omnivores, 10 carnivores and 10 herbivores that live in your vicinity.
4. Observe the way frogs, wall lizards and squirrels eat their food and describe in your own words what you see.
5. You may have noticed that some animals live in association with other animals. For example, the crane is always seen near the buffalo. Make a list of such animals which are always seen together.
6. The population of vultures has fallen dramatically these days. If vultures become extinct, what effect would it have on our environment? Discuss the matter in class and write your answer in your own words.

New words

Parasite	Saprophyte	Herbivore
Scales	Gills	Omnivore
Carnivore	Segmented body	Antenna
Microorganism	Bacteria	Virus

Three ways of crawling

