Chapter 8

Adaptations in Animal

Points to be studied

8.1 Adaptation

8.2 Habitat and animals

Adaptations in animals of aquatic habitat

Adaptations in animals of terrestrial habitat

- Adaptations in animals of terrestrial habitat
- Adaptations in animals of desert thabitat
- Adaptations in animals of polar region habitat
- Adaptations in animals of desert habitat

8.1 Adaptation:

Our Earth has a various geographical atmospheric conditions such as excessive heat (desert) extremely cold regions (Polar and Tundra) and regions of normal atmospheric conditions, sweet and brackish water areas etc. You will have read, heard and seen about the organisms living in various environmental regions. What these diverse environmental conditions, physical structures and behavior of living organisms will be the same?

Let's find out:

The physical structures and behavior of organisms living in these diverse environmental conditions are not uniform. Fish out of water after sometime dies. Have you ever thought why this happens?

Fish is an aquatic organism. Its external and internal structure of the body is made for living in aquatic environment only.

The physical characteristic of living organism, which enables them to survive in particular environmental conditions, is called adaptation.

8.2. Habitat and animals:

The following table8.1 provides the names of some habitat. Write the names of animals living around in front of them.

Table 8.1: Animals living in different habitat

S.N.	Habitat name	Animals name
1	Normal terrestrial	
2	Desert	
3	Terrestrial Arial	
4	Aquatic	
5	Polar	

Animals that are mentioned in the table, their physical characteristics enable them in living in the respective habitat.

Let us learn about adaptations found in aquatic animals -

Adaptations of animals of aquatic habitat:

For respiration aquatic animals get necessary oxygen from the water. These animals depend on aquatic plants and animals for food. Example - fish(fig. 8.1), pila, snails. They have following characteristic in their physical and internal structures. These characteristics are called as adaptations. Such as -

1. Aquatic animals have gills for respiration.
2. They possess scales or shell on their body.
3. Aquatic animals have air sac in the body which helps in living and swimming in water.
4. Eyes have a nictating membrane to protect it from the water.
5. They have fins for movement or swimming.

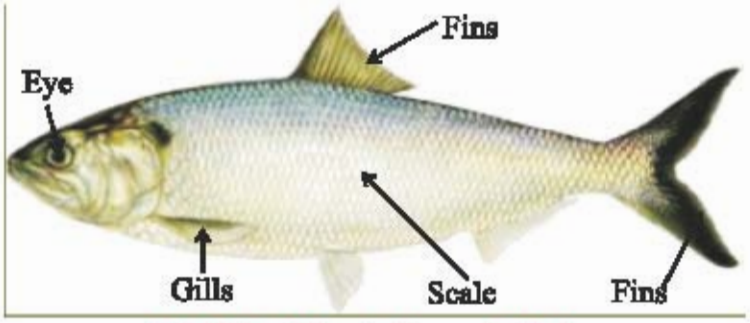

Fig 8.1: Adaptations in fish

Adaptations of Terrestrial Animals:

Various types of Terrestrial areas are found on the earth such as very high hills, plains and plateaus. In addition to these, area of excessive heat and extreme cold also exists on the earth. Animals found in a these variety of areas are also differing in physical and internal structures. Animals found on terrestrial habitats of earth are classified into the following categories -

1. Normal terrestrial habitat
2. Desert habitat
3. Hilly habitat
4. Polar habitat
5. Habitat of animals flying in air

Adaptations in animals of normal Terrestrial habitat:

Habitat of normal environmental conditions on the earth is called normal terrestrial habitat. The following are the characteristic of the animals found in this type of habitat :

1- They have legs for movement such as horse, deer, cows etc. But many animals do not have legs, but their body is muscular, which allows them to creep on the ground such as snakes.

2- A long tail found in monkeys is helpful in climbing on the trees, maintaining balance and provide grip on branches.

3- Giant animals such as elephants due to their heavy body and short neck cannot easily bend, therefore, it could not hold food by fore limbs hence it uses its long proboscis for breaking leaves and branches, pick up the food from the land and protect it from enemies.

4- Giraffe's neck is adapted to get its food from tall trees.

5- Carnivorous animals such as Lion, cat, leopard etc. have more developed canine teeth in mouth to tear prey.

6- Deer, hare, nilgai, horse etc. have well developed incisors to chew food.

Fig 8.2 Elephant and Horse

Adaptations in Desert animals:

The desert atmosphere includes dried areas of high temperature. Numbers of species of animals found in it is also less. In this habitat only those animals can survive which bear extreme temperatures and scarcity of water. Most animals living in this habitat make burrows in the land such as lizards, snakes; wild rats etc.

Fig 8.3 Desert Animal (Mouse)

Desert dwelling creatures have the following physical characteristics.

1. Their skin is light brown in color.
2. Their skin is thick, smooth and is dry.
3. Most animal are nocturnal which save them from the heat of the day.

Camel is an important example of this type of habitat. Broad, flat, pads at the bottom of their hooves. For this reason it can move freely in sand. It is also called the **"ship of the desert"**. After taking water it remains without water for many days. The urine of it is thick. Its stool is also hard. Camel's skin is thick so it excretes less sweat. Other examples of animals of this habitat are fox, rabbit, wolf, monitor lizard etc.

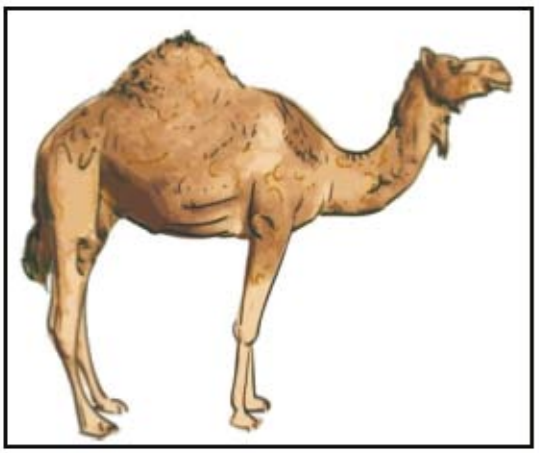

Fig 8.4 Desert animal (Camel)

Adaptations in Polar or cold habitat-

In polar region most of the time the ground is covered with snow. These regions have extremely low temperatures and the weather is dry. This type of habitat found in Polar Regions, on high mountains and plateaus. This is also called cold desert.

Low vegetation is found in Polar Regions. Hence less number of animals is found there. The animals found in these areas are rabbits, bear, Musk ox, reindeer, mountain goat etc. These animals have thick fur on the body and a thick layer of fat under the skin, which prevents them from cold.

Animals in these region is very less so it is a safe area. That's why penguin makes their home in these areas during their breeding season.

Fig 8.5 Reindeer

Fig 8.6 polar beer

Adaptations in animals flying in air:

This category includes those animals which can fly in the air as well as live on the land.

You have seen a wide variety of birds flying in the sky. Have you ever thought how the birds fly in the sky? What are the physical characteristics by which they can fly in the sky and we can't?

Let's know about physical adaptations of these flying birds -

1. Their forelimbs are modified into wings.
2. Their body is lighter and the boat shape so they can fly in the air easily.
3. Birds have no teeth in the mouth, but their beak is rigid and strong, they eat insects by comfortably holding it.

4. Their bones are hollow and the air is filled in hollow cavity of bone, which makes their body lighter.
5. Its body is covered with feathers.
6. Bird's heart is very powerful. It provides blood, nutrition and oxygen to wings during flight.

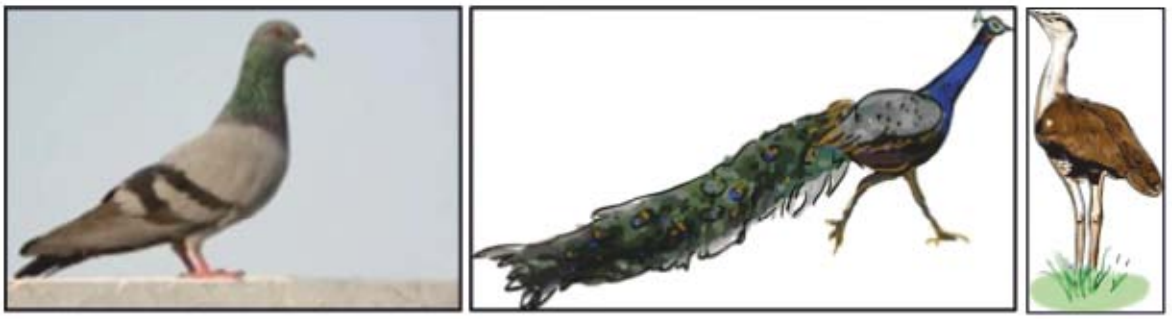

Fig. 8.7 Pigeon, Peacock and Godavan

What have you learnt

- The physical characteristic of living organism, which enables them to survive in particular environmental conditions, is called adaptation.
- Respiration in aquatic animals takes place through gills.
- In Aquatic animals a nictating membrane is found on eyes.
- Many normal terrestrial animals do not have legs, but they have muscular body which allows them to creep on ground such as snakes, earthworm etc
- The skin of desert animals is thick, smooth and dry.
- Polar animals have thick hair and a thick layer of fat under the skin, which regulates their body temperature.
- Their bones are hollow and the air is filled in hollow cavity of bones, which makes their body lighter.

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Exercises

Choose the correct option -

1. Aquatic animals have adaptations -
   (a) Gills (b) Scales
   (c) Lay eggs (d)all the above ( )
2. State bird of Rajasthan -
   (a) Peacock (b) Pigeon
   (c) Great Indian bustard (d) Parrot ( )
3. Which habitat has a characteristic of fat under skin and a layer of fur?
   (a) Aquatic (b) desert
   (c) Polar region (d) all the above ( )

Fill in the blanks -

1. The physical characteristic of living organism, which enables them to survive in particular environmental conditions, is called.....
2. Bones of birds are.....and body is covered by.....
3. Aquatic animals have.....on eyes.

Short answer type questions -

1. What features are found in bird's body, which make them suitable for flying?
2. What would happen if there was no cushioning in the camel's foot?
3. If a thick layer of fat is not found under the skin of the polar bear then what will be the effect of it?

Long answer type questions -

1 What is a difference between terrestrial and aquatic organisms?

2. What characteristics are found in camel which adapts it for desert habitat?

Activity:

1. Observe your nearby animals. Prepare a table of adaptations found in them on a chart and fix it in your class room.
2. Observe aquatic and terrestrial plants and animals and discuss their characteristics.
3. Observe different type of insect's shape, colour etc found on trees.
4. Prepare a chart of beaks of birds found around.
5. Prepare a scrap book of pictures of adaptation (animals and plants).

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