

CHAPTER

3



MOVEMENTS AND BREATHING OF ANIMALS

Learning Objectives:

- Movement in animals
- Different body parts for movement in animals
- Breathing in animals
- Different organs for breathing
- How do land animals breathe?
- How do water animals breathe?

MOVEMENT IN ANIMALS

Animals move from one place to another in search of food, shelter and a safe place for their offspring. Animals on land, air and water move in different ways. They have different body parts or limbs that enable them to move from one place to another.

Animals on Land and their Movement

Animals on land have four limbs. The two in front are called **forelimbs** and the two at the back are called **hindlimbs**. Some animals use all the four limbs to run, hop, walk, while some use their limbs to swim or burrow. A horse uses its four limbs

galloping. A rabbit has padded toes for running and large hindlimbs for hopping. A cheetah is able to run with a speed of 70 miles per hour with the help of its limbs.



Land animals use their limbs for movement

Know more

The largest living land animal is the bull African elephant which is about 12 feet tall and giraffe is the tallest land animal with the height of 19 feet.

Animals in Water and their Movement

Ducks have webbed feet to move around in water. They do not have nerves in their feet so they cannot feel when water is cold. Frogs also have webbed feet to swim but they also have hindlimbs to jump on land. Fish have fins, one pair in the front and one pair at the back to move in water. The unpaired fin helps the fish to maintain balance and the tail fin helps in changing the direction in water. The octopus move around with the help of its strong tentacles. Turtles use their four padded limbs to swim whereas penguins use their two forelimbs to push water and swim.



Webbed feet of duck



Frog with webbed feet and hindlimbs



Fish with fins

Know more

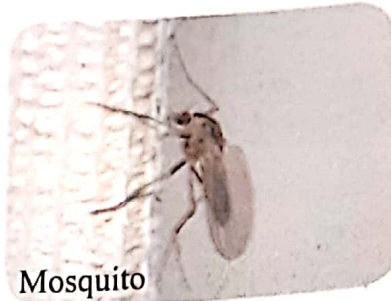
The four eyed fish (a surface-dwelling fish) can see in air and water simultaneously. Its each eye is divided by flaps, so there is one opening in the air and one in the water.

Insects

Insects have six legs. Some insects only crawl while some are able to crawl, hop and fly. Ants, beetles, bed bugs, lice and cockroach crawl. Some insects have a pair of wings to fly like butterfly, honeybee, mosquito, dragonfly and grasshopper. A grasshopper uses its hindlimbs for hopping and wings to fly. The wings of insects are different from that of a bird. The wings of insects are coloured and have tiny scales on them.



Cockroach



Mosquito

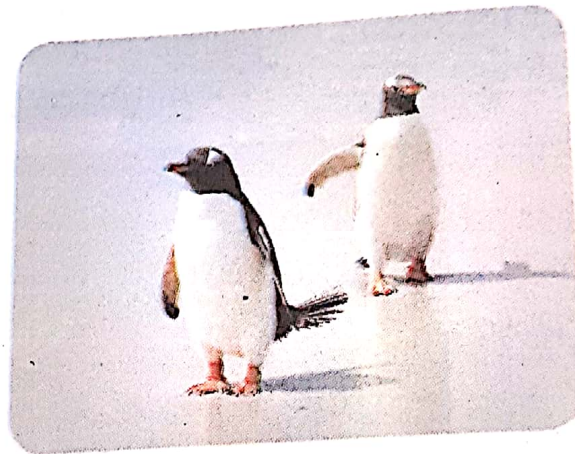


Dragonfly

Coloured scaly wings of insects

Birds

The bones of birds are light and hollow. They have a boat-shaped body and wings attached to their breastbone with strong chest muscles. They have feathers to keep them warm. They use their feet to hop and move. However, birds like emu, penguin and ostrich, use their feet to walk and run. They are flightless birds and not able to fly.



Flightless birds – emu, penguin and ostrich

Know more

Emu is an Australian flightless bird that is two metre tall and reaches the speed of 50 km/hour. Its wings are only 1/10th of its body length which act as stabilizers while running.

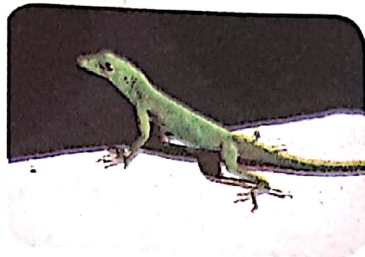
Reptiles

The cold-blooded animals like snakes, lizards, crocodiles, turtles and tortoises are distinguished by their dry scaly skin. These reptiles have limbs to move but they crawl on their bellies on land to lay eggs. The limbs of a turtle act like flippers and enable them to paddle through water.

A reptile that does not have limbs is snake. Snakes have scales or plates on the underside of their bodies which are attached to their ribs. These plates act like feet and ribs act like legs and enable the snake to move. Snakes have strong muscles and as they move forward or backward, their scales push against the ground. Because of the scales, a snake finds it difficult to move on a smooth surface but moves easily on a rough ground.



Snake



Lizard



Crocodile



Turtle

Know more

Worms and lizards do not have legs. They use their specially-designed head to burrow through the soil. They have small or no eyes as they live in dark, so they do not need to see.

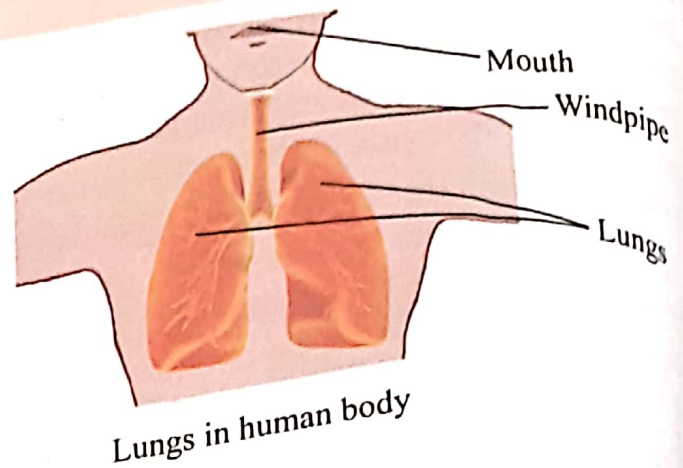
Humans are higher form of animals who use their feet to balance and stand erect. The legs help to walk while each hand helps to hold things as their hands have four fingers and a thumb to form grip. Humans have a highly developed brain to think which has helped him to go to space, manufacture robots, computers and complex machines. The technical advancements made by humans have helped them to manufacture robotic arms for surgery which is a great achievement in medical history.

BREATHING IN ANIMALS

All living beings need air to breathe. The oxygen that the living beings breathe in burns the food in the body to release energy; it helps to carry out various activities by them. There are different organs for breathing in different animals.

Land Animals

The animals on land breathe through their lungs. The air enters the lungs through the windpipe. The lungs have blood vessels. The blood takes in the oxygen and supplies it to all the parts of the body. Through the blood vessels, the carbon dioxide is released into the lungs from the blood, which is then exhaled out of the body through lungs.



ACTIVITY

Objective: To observe your breathing rate per minute after various activities and tabulate your observation

Steps:

- Place your hand on the chest
- Count the number of times it moves up and down in a minute.

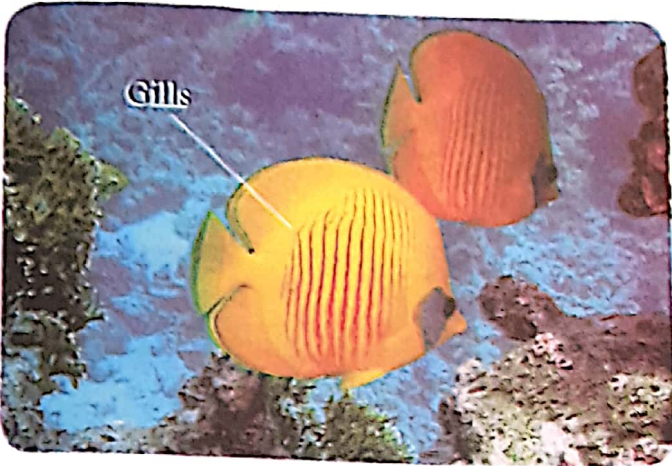
Observation:

Activities	Breathing Rate (per minute)	
	Immediately	After 5 minutes
Walking		
Swimming		
Running		
Reading		
Exercise		

Water Animals

The aquatic animals take in the dissolved oxygen from water while the land animals take it from air. Fish, crab, oysters and tadpole breathe through their gills. The gill

have blood vessels. The gills absorb the oxygen dissolved in water and release carbon dioxide. A tadpole breathes through its gills in water but an adult frog breathes through its lungs on land and through its moist skin in water. Whales and dolphins are water animals but they are mammals. They have lungs and they come to the surface of water to inhale oxygen but they exhale carbon dioxide through their **nostrils** (or called **blowhole**) in the water.



Fish with gills



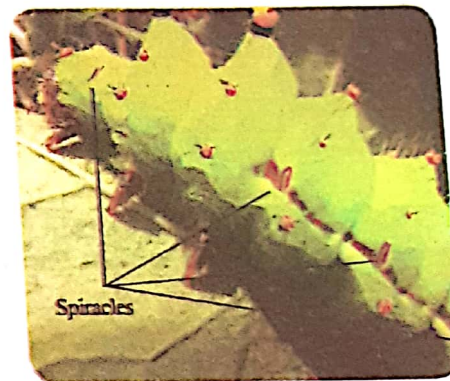
Blowhole in dolphin

Know more

- Sea turtles breathe through lungs. So they have to come to the surface for breathing. They can hold their breath for months together.
- A fish impersonator, whale, is actually a mammal. It gives birth to young ones and breathes through lungs.

Insects

Insects have holes on their bodies called **spiracles** which help them to breathe. They have a network of air tubes called **trachea** which run across the whole body. Air passes through this network of tubes to whole body of the insect.



Spiracles in insect

Reptiles

Reptiles have lungs which help them to breathe.

Birds

Birds also have lungs. They take in oxygen through the holes on the upper portion of their beaks and give out carbon dioxide.



Holes for breathing in beaks of birds

SUMMARY

- Animals move from one place to another in search of food, shelter and a safe place for their offspring.
- Land animals move with the help of their limbs.
- Some water animals have webbed feet like ducks and frogs.
- Land animals breathe through lungs.
- Fish breathe through gills.
- Whales and dolphins are water animals but they breathe through lungs.
- Insects breathe through the holes on their bodies.

GLOSSARY

- **Forelimbs:** front two limbs of animals
- **Hindlimbs:** two limbs attached with lower end of the body
- **Spiracles:** holes on the bodies of insects which help them to breathe
- **Trachea:** network of air tubes that insects have all over the body

Objective Type Questions

1. Write true or false. Correct the incorrect statements.

- Snakes have weak muscles.
- The aquatic animals take in oxygen from air.
- Insects have small holes on their bodies called trachea.
- Penguins and ostrich are flightless birds.
- All insects fly.

2. Match the following.

Column A	Column B
(a) Land animals	(i) tentacles
(b) Octopus	(ii) webbed feet
(c) Cockroach	(iii) legs
(d) Frog	(iv) limbs
(e) Snake	(v) scales

3. Give one word answer for the following.

- This helps duck to move in water
- This body part helps a rabbit to run
- An octopus moves with its help
- Holes on the bodies of insects
- Reptile that does not have limbs

Subjective Type Questions

4. Answer the following.

- Describe the limbs of land animals.
- How do whales and dolphins breathe?
- Snakes do not have legs then how do they move?
- How do insects breathe?
- How is the breathing of a tadpole different from the breathing of a frog?

Multiple Choice Questions (MCQs)

5. Tick (✓) the correct options.

- Animals on land have types of limbs.
 (i) 2 (ii) 3 (iii) 4 (iv) 6
- The front limbs of land animals are called
 (i) gills (ii) lungs (iii) forelimbs (iv) fins
- The helps a fish in changing direction in water.
 (i) tail fin (ii) gills (iii) scales (iv) oxygen
- The bones of a bird are and hollow.
 (i) heavy (ii) light (iii) strong (iv) weak
- A tadpole breathes through its
 (i) lungs (ii) skin (iii) gills (iv) fin

Questions Based on Higher Order Thinking Skills (HOTS)

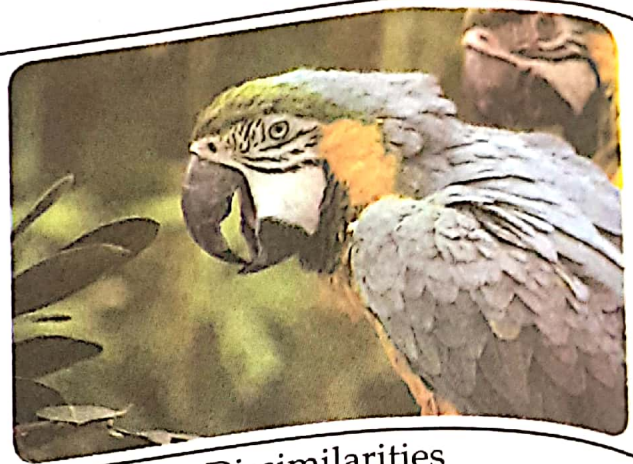
6. Give reasons for the following.

- (a) Reptiles crawl on land.
- (b) Snakes find it easy to move on rough ground.
- (c) Humans are higher form of animals.

7. Hi! I am monkey. Can you help me in finding out how I resemble and differ with my tree mate parrot?



Similarities



Dissimilarities

ANSWERS

1. (a) F (b) F (c) F (d) T (e) F 2. (a)(iv); (b)(i); (c)(iii); (d)(ii); (e)(v) 3. (a) Webbed feet (b) Padded toes (c) Tentacles (d) Spiracles (e) Snake 5. (a)(i); (b)(iii); (c)(i); (d)(ii); (e)(iii)