

# The Amazing Animal Kingdom

## Let's Begin

Try and list an animal for each letter of the alphabet.

The Earth is home to millions of animals. The natural surroundings in which an animal lives, grows and has young ones in is called its **habitat**. Animals have various adaptations that suit their habitat. An **adaptation** is any change in the body or habit of an animal that helps it live successfully in its habitat.

## FEEDING HABITS

Animals vary in the type of food they eat. Their feeding organs and mouthparts are shaped to suit their feeding habits.

### Herbivores

Herbivores eat plants and plant parts. They have sharp front teeth to bite grass. They also have broad teeth at the back to chew hard plant materials. Elephants use their strong trunks to pull down tree branches. Giraffes have long necks to reach the leaves at the tops of trees. Rodents like rabbits, squirrels and rats have large, sharp front teeth which they use to **gnaw** (nibble) their food.



*squirrel*

### Carnivores

Carnivores are animals that eat other animals. Animals like tigers, lions, leopards and hyenas have four sharp, pointed teeth to tear into flesh. They also have strong grinding teeth to help them chew the flesh and bones. Sharp claws also help them to hold on to their prey. Carnivorous birds like vultures and eagles have sharp claws to catch prey and sharp pointed beaks to tear into flesh. They have sharp eyesight to help them spot their prey from the sky.



*vulture*

## Omnivores

Omnivorous animals eat both plants and meat. Their teeth are designed to eat both kinds of food. Humans, jackals, bears, crows and chimpanzees are some examples of omnivores.

## Insects

Some insects like butterflies, moths and mosquitoes have a special mouthpart called the **proboscis**. This helps them suck nectar and other fluids.



## BREATHING PROCESS

All animals need to breathe to stay alive. They take in oxygen from their surroundings through different organs and use it for different processes in their bodies. Land animals absorb oxygen from the air that they breathe in. Aquatic animals absorb oxygen dissolved in water.

## Skin

Microorganisms like the *Amoeba* exchange gases through the surface of their body. Oxygen passes in and carbon dioxide is released into the surroundings. Earthworms, which live underground, take in oxygen through their moist skin. Amphibians such as frogs use their lungs to breathe when they are on land. When in water they use their moist skin to breathe.



## Airholes

Some insects like cockroaches have airholes called **spiracles** on their body. These spiracles open into air tubes that form a network throughout the body. They do not have the red oxygen-carrying substance called haemoglobin in their blood. This is why the blood of insects is not red. Oxygen is passed through the network of air tubes to all body tissues. Carbon dioxide is sent back out in the same way.



*spiracles of an insect*

## Gills

Gills help fish, tadpoles, crabs and oysters to breathe in the oxygen dissolved in water. As the water passes through the gills, dissolved oxygen is taken in and carbon dioxide released. This water is sent back out.

## Lungs

Reptiles, birds and mammals use lungs to breathe. Humans are also mammals and use lungs to breathe. Through the lungs, oxygen is taken in and carbon dioxide is released from the body. Aquatic mammals like whales and dolphins also breathe through their lungs. They come up to the water surface to breathe.



*dolphin*

## ANIMAL MOVEMENTS

Animals move from place to place in search of food and shelter and also to escape from their **predators**. They use different body parts to move about; the body parts are different based on their habitat.

## Terrestrial Animals

Most large animals that live on land have four limbs. The two limbs in the front are called **forelimbs** and the two at the back are called **hindlimbs**. Some animals like the dog, tiger, horse and cow use all four limbs to move. Many others like birds and apes can walk on their hindlimbs. Humans also use only their hindlimbs to walk or run.



Some animals like squirrels and rabbits use both sets of limbs to walk and run but also use their forelimbs to hold their food.

Herbivores like cows, goats and deer have strong hoofs to help them walk long distances and to run away from **predators**.

Carnivores have soft paws which help them walk softly and surprise their **prey**.

## Aquatic Animals

Aquatic animals have different organs to move in the water. Fish swim by moving their body from side to side and by using their **fins**.

They also use their fins to maintain balance and to change direction while swimming. Turtles use **flippers** to swim. Penguins cannot fly, but their wings are modified to form flippers. The flippers are used like paddles to move through water.



*penguin*

When penguins are on land they walk on their hind limbs. Frogs have

**webbed feet** which help them swim in water. They have long hindlegs with which they hop on land.

## Birds

In birds, the forelimbs form a pair of **wings** which help them fly in air. The wings are attached to their chest by strong muscles. This helps them flap their wings and remain in the air for a long time. While flying, they use their tail feathers to change direction. They use their legs to walk, run and hop on land. They have strong, sharp **claws** to help them perch on trees. All birds have wings but birds like the ostrich, kiwi and emu are flightless. They have strong legs to help them run fast. Waterbirds like ducks and swans have **webbed feet** that help them swim in water.



## Reptiles

Reptiles like crocodiles, lizards and tortoises crawl on land with their short and stout limbs. Snakes are also reptiles but they do not have legs. They have scales and plates on the underside of their body that help them move along the ground. They have strong muscles and a flexible backbone that helps them to glide over the ground.



## Insects

Insects have six legs which they use to crawl on the ground. Some insects like the mosquito, butterfly, moth, dragonfly and housefly have wings to fly with. Their wings are different from the wings of a bird. They do not have feathers or bones. Some insects like the grasshopper and praying mantis have long hindlegs, which help them to hop or jump. The water boatman uses its legs as oars to swim.



## Others Animals

There are some organisms such as scorpions and spiders that are related to insects. They have eight legs that help them move on the ground. Millipedes and centipedes have several **segments** in their body. Each segment has a pair of legs which they use to crawl on the ground.





## Humans

We use our hindlimbs or legs to walk, run and stand up straight. We use our forelimbs or arms to perform various tasks. The fingers and thumb on our hands are positioned opposite to each other. This helps us to hold and grasp things. Apes like orangutans, gorillas and chimpanzees, as well as monkeys, have hands similar to the hands of humans.



*chimpanzee*

## MIGRATION

During specific times of the year, some organisms move from one place to another. This regular movement of a large group of animals over a great distance is called **migration**. Animals migrate in search of food, to escape harsh weather conditions and to give birth to young ones.

- ❖ Animals like reindeer and wildebeest move in great numbers across a great distance in search of food.
- ❖ The Arctic tern is a migratory bird. Every year it spends the summer in the Arctic. During winter, it flies to the Antarctic where it is summer. It returns to the Arctic in spring. The bird covers more than 70,000 kilometres on its wandering journey every year! The Siberian crane, flamingo, sandpiper and stork are other migratory birds.
- ❖ An adult salmon fish swims from the sea to the freshwater stream where it was born, to lay its eggs. When the eggs hatch, the young ones find their way to the sea. After spending some years in the sea, they return to the same stream they were born in, to lay eggs, just like their parents.
- ❖ Eels are fish that spend their life in freshwater until they mature. They then travel to the sea where they lay eggs. On hatching, the young ones go back to the river their parents came from.
- ❖ When winter begins, some whale species migrate from the polar regions to the warm seas in the tropical region. They give birth to their calves here. In spring, when it starts becoming warm in the tropics, they return to the polar regions along with their calves.
- ❖ Monarch butterflies in North America fly from Canada to Mexico to escape the harsh winter in the north.



*arctic tern*



*monarch butterfly*

- ❖ Large swarms of locusts (related to grasshoppers) migrate across the land in search of food. They destroy crops and plants as they feed on them.

Migration still remains a great mystery to scientists. We know that some aquatic animals use sea currents and water temperature to guide them. Reindeer use the direction of the Sun's rays to find the right direction. Birds have sharp eyesight and excellent visual memory. They also use the position of the Sun and the stars to locate a place. Humans have caused many harmful changes in nature. These interfere with the migration pattern of animals, causing many of them to die. We must do everything we can to protect all the living things on this planet.

## Let's Remember

**PREY** an animal that is killed by another animal for food  
**PREDATOR** an animal that hunts and kills another animal

## Let's Sum Up

- ❖ The natural surroundings in which an animal lives, grows and has young ones is called its habitat.
- ❖ An organism's feeding organs and mouthparts are modified according to the food it eats.
- ❖ Animals absorb oxygen for breathing through lungs, gills, spiracles or skin.
- ❖ Animals use various organs like limbs, wings, fins and paddles to move from one place to another.
- ❖ The regular movement of a large group of animals over a great distance is called migration.

## Let's Understand

### A. Choose the correct answers.

- Which of the following structures help a frog to swim?  
 a. limbs                      b. flippers                      c. webbed feet                      d. fins
- Which of the following use their paddle-like wings for swimming?  
 a. penguins                      b. water boatmen                      c. seagulls                      d. ducks

3. The term that best describes the movement of reptiles on land is \_\_\_\_\_.  
a. crawl                      b. wade                      c. hop                      d. waddle
4. Select the group that has only flightless birds.  
a. crow, rhea, kiwi, emu  
b. ostrich, hen, duck, pigeon  
c. emu, ostrich, penguin, kiwi  
d. penguin, peacock, swallow, parakeet
5. From the given list, identify the animal which migrates.  
a. goldfish                      b. dog                      c. house crow                      d. eel
6. Which of the following do **not** guide animals when they migrate?  
a. sea currents                      b. stars                      c. roads                      d. the Sun's rays

**B. Name the following.**

1. Animals which eat other animals
2. Animals which live both on land and in water
3. The red oxygen-carrying substance in our blood
4. Airholes on the bodies of insects
5. The mass movement of animals from one place to another

**C. Identify the structures, state their function and give an example of an animal with them.**

1. Sharp, curved, nail-like structures on the toes
2. Hard mouthparts without any teeth (*Hint*: Found in birds)
3. A tube-like mouthpart that is used to suck nectar, blood and so on
4. Holes in the sides of the body, connecting the respiratory passages to the surroundings
5. Broad and flattened structures, with skin between the toes

**D. Answer in brief.**

1. Explain how different types of teeth help different animals to feed.
2. What is the difference between the blood of insects and that of humans?
3. Name two mammals which live in water. Which organ do they use to breathe?

4. What are gills?
5. Name two birds that migrate.

### E. Answer the questions.

1. Why do animals move from one place to another?
2. How are the teeth in carnivores suited to the food they eat?
3. How does exchange of gases happen in the body of an insect?
4. Explain how the special structures in snakes help them to move.
5. Describe how the forelimbs and hindlimbs of birds help in movement.
6. By giving three suitable examples, explain how certain animals use migration to survive and increase in number.

## Let's Think

FA

Complete the table to understand how these water animals differ in the type of breathing organs and organs for movement that they have.

	Animal	Breathing	Movement
1	fish	gills	body, fins
2		moist skin	webbed feet
3	turtles		
4			legs with hoofs

## Let's Learn

FA

### Presentation

Create your own imaginary habitat. Now design an imaginary animal which can survive in this specific imaginary habitat. Make a sketch of it and present it to the class, explaining its features.

### Project

How do the six legs of a cockroach help it to move? To observe the role of limbs in movement, trap a cockroach in a cardboard carton. Place a few crumbs of bread in the box and replace its lid with a transparent plastic sheet. Do all the legs move together? Is there any pattern in the way the legs move?



## Let's Have Fun



FA

### Have a turtle race!

*You will need:* cardboard sheets, scissors, string, chairs

#### *Method*

1. Cut out turtle shapes (one for each participant) from cardboard and make a hole near one end. (You can decorate your turtles.)
2. Line up the chairs (one for each participant).
3. Tie a long piece of string to one leg of each chair.
4. Pass the other end of each string through the hole in a turtle.
5. Stretching the string tight, gently shake it up and down to make your turtle move.

The person whose turtle reaches their chair first wins!

## Life Skills



If you have a bad cold and find it difficult to breathe, try **steam inhalation** to clear the respiratory system. Ask a doctor how you can do this.

## Know Your Values



Your sister has a loose tooth and cannot eat a special snack that a relative gives both of you. What can you do? Discuss this in class.

- ❖ Eat her share too, because she cannot eat it anyway.
- ❖ Wait till she is better and eat it together with her.
- ❖ Offer her some other snack that she likes, which she can eat.

## Know Your Heritage



Pranayama is an ancient Indian practice of controlled breathing. It is said to relieve mental stress and have benefits for the respiratory system. Learn more about pranayama from a yoga teacher.