Unit 5

The World of Animals

B4CMJA

Learning Objectives

- To understand that there are many kinds of animals.
- To identify the diversity seen both in plants and animals.
- To distinguish between unicellular and multicellular organisms.
- To identify the variations present in living forms according to their habitat.
- To list out the adaptations exhibited by the animals based on the habitat.
- To explain the relationship present between various living forms.

Introduction

The National School, Nallur, organised a field trip to a nearby village called Anaikkadu. The students were so happy to see a village with ponds, streams, green fields and coconut trees. With the help of their teacher students were allowed to go around. One of them saw two birds building a nest. Where do the birds build nests and why?

Children saw a number of butterflies fluttering near the flowers. The air was so fresh, so calm, so quiet and so relaxing. They came across a pond in the distance. It had some water. Floating on the water were dark green lotus leaves. A green frog was leaping from one lotus leaf to another making a croaking sound. A girl spotted a rabbit with a short tail.

Can you make a list of the animals seen by the children? Were they all similar? In what way they were similar?

5.1 Biodiversity

In the living world, a lot of diversity is seen both in animals and plants. Every plant and animal is unique. It is called biodiversity. Biodiversity may be defined as the variety and variability among living organisms and the habitats in which they live.

Biodiversity includes a variety of ecosystems such as those that occur in deserts, forests, mountains, lakes, rivers and agricultural fields. In each ecosystem, living creatures, including humans, form a community interacting with one another and with other animals, plants, air, water and soil around them. The living things form biotic community and non-living things form abiotic community.

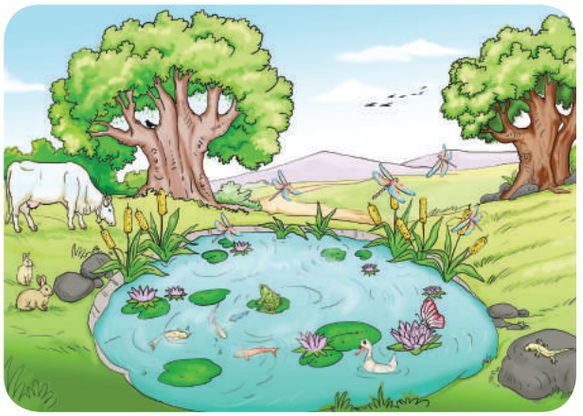
Habitat

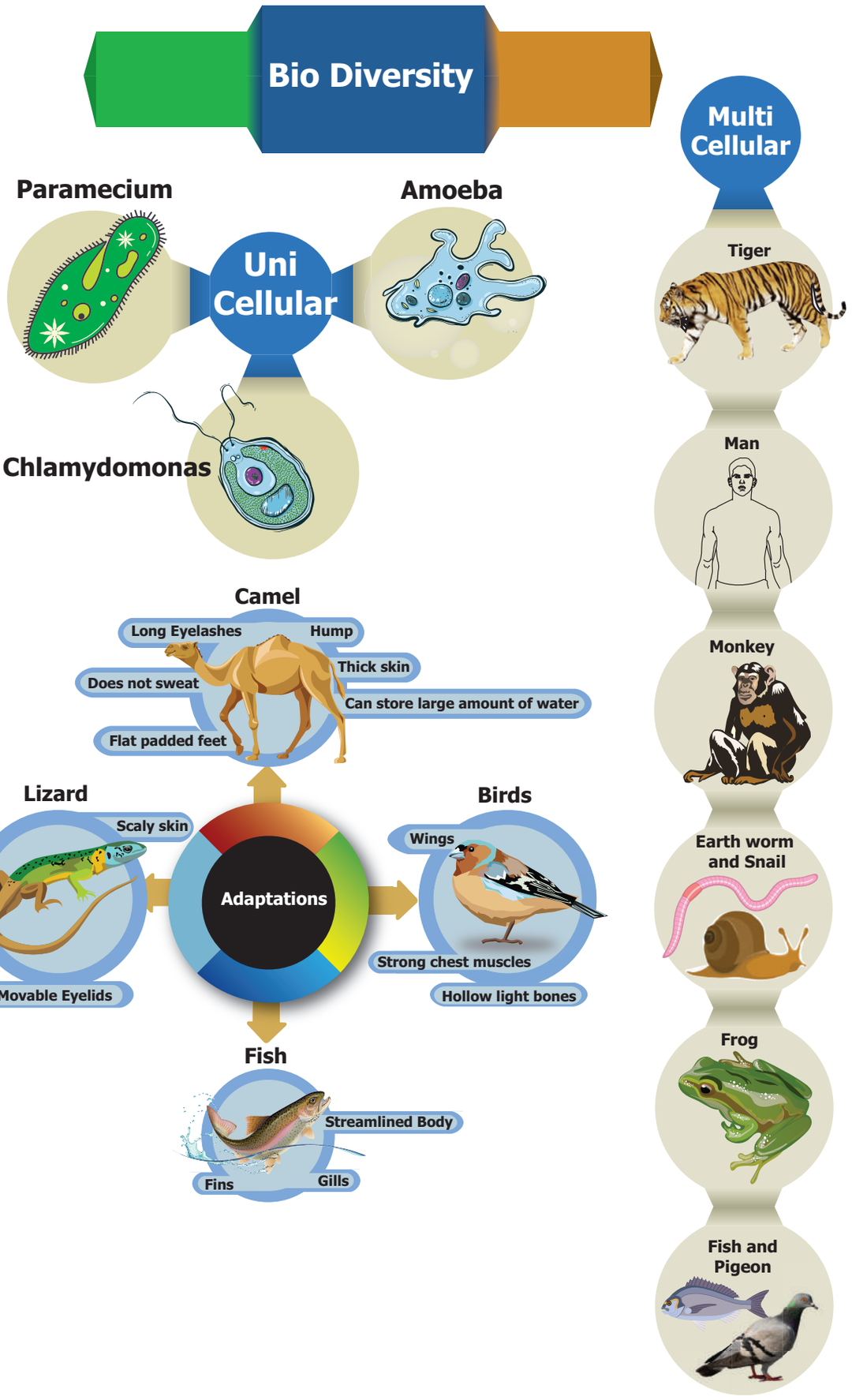
Fishes and crabs live only in water while many animals like elephants, tigers and camels live on land. The geographical features and environmental conditions on earth differ from one place to another. Though camel can live anywhere it is able to live in deserts more comfortably. Polar bear and penguins dwell in cold regions. Living in such harsh conditions requires special features in these animals. They help these organisms to live, breed and excel well in that particular place. Living or dwelling place of an organism is known as **habitat.**

Activity 1

Look at the picture given below and prepare a chart for the following interpretation.

- How does the climate differ in these habitats?
- Name some animals that exist in these habitats.
- Can an animal survive if it is shifted from one habitat to another contrasting habitat?





Activity 2

Collect the pictures of various ecosystems like lakes, ponds, forests, deserts, mountains, and polar regions and prepare a chart of animals living in these places.

In **Jurong Birds Park**, Singapore, Penguins are kept in a big glass case with ice bergs and the temperature is maintained at 0° C and below.

Penguin

5.2 Unicellular and Multicellular Organisms

Living things are made of small units called cells. All the functions and processes in the body of living things are brought about with the help of these microscopic cells. Some organisms are made of a single cell and these are called unicellular organisms; whereas, the organisms that are made of many cells are called **multicellular organisms**.

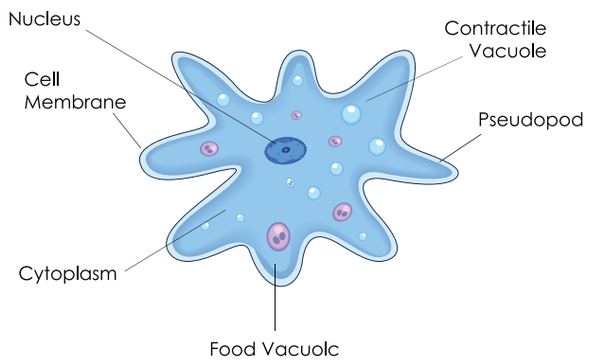
Amoeba, paramecium and euglena are unicellular organisms while fish, frog, lizard, bird and man are multicellular organisms.

1. Unicellular organism

Unicellular organisms are small, usually microscopic. They cannot be seen with naked eye. They are aquatic, simplest and most primitive of all animals. They perform all their physiological activities by the special structures present inside the body called organelles.

Amoeba

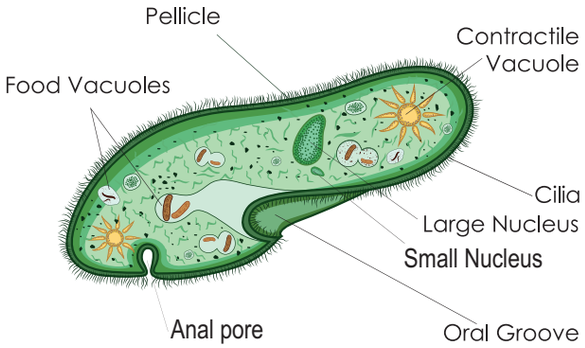
We know Amoeba is an unicellular organism. It does all the activities like digestion, locomotion, respiration and reproduction within the same cell.



It swallows food from the water and the food is digested in the food vacuole. Contractile vacuoles help in excretion. Respiration is by simple diffusion through the body surface. They have finger-like projections called pseudopodia, (false foot) which help in movement or locomotion.

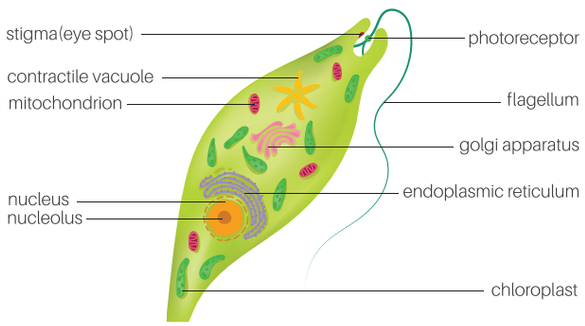
Paramecium

Paramecium is also a unicellular organism which lives in water and moves with the help of cilia.



Euglena

Euglena is an unicellular animal which moves with a flagellum.



2. Multicellular organisms

Majority of organisms we see around us, including animals are multicellular. In such organisms, different functions are carried out by different groups of cells or organs in their body. E.g. Jelly fish, Earth worm, snails, fish, frog, snakes, pigeon, tiger, monkey and man.

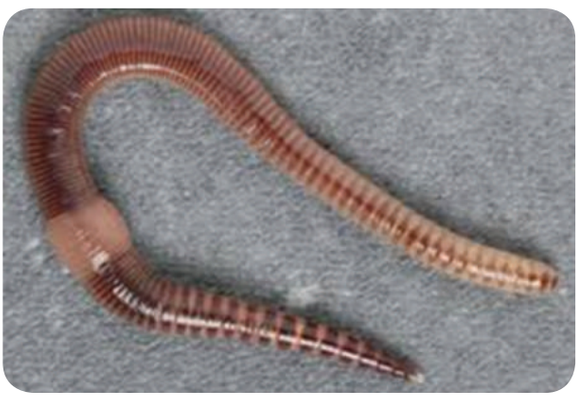


Table 1 The differences between Unicellular and Multicellular Organisms.

Unicellular Organism	Multicellular Organism
❖ They are made up of a single cell.	❖ They are organisms that are made up of many cells.
❖ They can perform all the functions of life.	❖ Division of labour exists among cells. Different cells are specialized to perform different functions.
❖ These organisms are generally very small (microscopic) in size.	❖ They are mostly large in size. They are seen through naked eye.
❖ They lack tissues, organs and organ systems.	❖ They are composed of tissues, organs and organ systems.
❖ Growth occurs by an increase in the size of the cells.	❖ Growth occurs by an increase in the number of cells by cell division.
Eg. *Amoeba, Paramecium* and *Euglena*.	Eg. Earthworm, Fish, Frog, Lizard and human being.

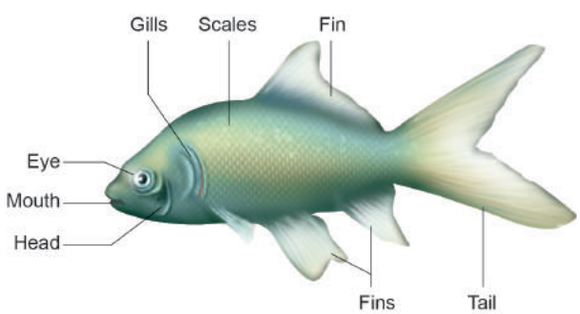
5.3 Adatptation in Animals

A Living thing can survive in a particular habitat if its body is adapted to the conditions of that habitat. Plants and animals develop special characteristics or features in their body in order to survive in their habitat (the surroundings). The presence of specific body features for certain habitats which enable a plant or an animal to live in a particular habitat is called adaptation.

The fish live either in freshwater or in marine water. Let us analyse the adaptations seen in fishes for their aquatic life.

Fish

1. The head, trunk and tail of a fish merge to form a streamlined shape. The streamlined body shape helps the fish to move through the water easily.
2. The fish has special organ called 'gills'. It is a respiratory organ which helps to absorb oxygen dissolved in water for breathing. It is adapted to breathe in water.
3. Most of the fishes have slippery scales all over the body which protect the body.
4. The fish has fins for fast swimming.



5. The fish has strong tail fin which acts as rudder to change direction and keep its body balance in water.

Frog

Amphibians lead a dual mode of life, living both in water and land. They are poikilothermic animals. Their body is divided into head and trunk with two pairs of limbs. During the larval stage, frog respire with the help of gills and the adult frog respire through skin, lungs and bucco-pharyngeal region.

Lizard

1. Lizards are scaly-skinned reptiles that are usually distinguished from snakes by the possession of legs, movable eyelids, and external ear openings.
2. They mostly inhabit warm regions. Most lizards are quadripedal (walk with four legs) and have a powerful limb.
3. Some lizards are able to run bipedally with two legs. In these lizards, the tail is held out backward and upward and acts as a counterweight.
4. Some lizards have the capacity to rotate the head around the head joint.
5. They breathe through lungs.

6 Most lizards eat a variety of insects like mosquitoes and cockroaches with sharp projections on the tongue adapted for grabbing and holding.

7 Some lizards (Dinosaurs) have web in the toes, and few lizards are able to glide or parachute the air and make safe landings.

Birds

1. They have streamlined body covered with feathers. This body shape provides minimum resistance to air.
2. They have beak instead of mouth.
3. They breathe through lungs.
4. They have a pair of wings that are modified forelimbs.
5. They have hollow and light bones.
6. Usually we see birds fly, however they can also hop, move, run, etc., on the ground and they perch well on the branches of tree with the help of a pair of clawed feet.
7. The tail of the bird helps it to control the direction of the movements.
8. They have strong chest muscles which help them withstand the pressure of the air while flapping their wings during flight.
9. At a time, birds can see one object with one eye and another object with the other eye (Binocular vision).

Animals change their location as the season changes. It is called **migration**. In Tamil Nadu bird sanctuaries are located at **Vedanthangal, Kodiyakkarai** and **Koondhankulam**. Many birds from foreign countries like **Siberia** and **Russia** migrate to Vedanthaangal. Likewise during summer and drought conditions birds from our country migrate to foreign countries. These birds are called **migratory birds**.

Camel

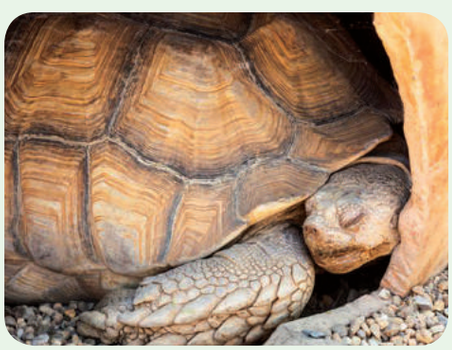
Camel lives in hot desert where water is scarce. Camel is able to survive in desert because of the following special features.

1. The camel has long legs which help it to keep its body away from the hot sand in the desert.
2. A camel can drink large amount of water (when it is available) and store it in the body.
3. A camel's body is adapted to save water in the dry desert in the following ways:
   (i) A Camel passes small amount of urine
   (ii) Its dung is dry and it does not sweat.
   (iii) Since a camel loses very little water from its body, it can live for many days without drinking water.
4. A camel's hump has fat stored in it. In case of energy requirement a camel can break down stored fat for nourishment.

5. A camel has large and flat padded feet which help it to walk easily on soft sand. Thus it is called 'Ship of the desert'.
6. Camel has long eye lashes and hairs to protect its eyes and ears from the blowing dust.
7. It can keep its nostrils closed to avoid dust during sand storms in the deserts.

Info Bits

Spending winters in a dormant condition is called **hibernation** (Winter sleep).
Eg. Turtle
On the other hand, spending the hot and dry period in an inactive state is known as **aestivation** (Summer sleep). Eg. Snail



Kangaroo rat does not drink water at all. It obtains the required water from the seed it eats.

Table: 2 Adaptive features of animals from different habitats

Sl.No.	Name of the Animal	Habitat	Adaptive features
1.	Polar Bear	Polar region	Thick skin for protection, white fur
2.	Penguin	Polar region	Paddle to swim, walk with two legs
3.	Mountain Goat	Mountains	Strong hooves for running Long hair to protect from cold
4.	Lion	Forest	Strong and fast runner has sharp claws to catch prey.

Polar Bear

Mountain Goat

Lion

Penguins

The mountain goat namely **Nilgiri Tahr** can find small spaces on rock to climb with ease and keep its balance as it feeds.

Evaluation

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I. Choose the correct answer.

1. The study of living beings or organisms is called

   a. Psychology b. Biology

   c. Zoology d. Botany

2. Which of the following are the characteristics of living beings?

   (i) Respiration (ii) Reproduction

   (iii) Adaptation (iv) Excretion

   Choose the correct one

   a. (i), (ii), and iv only

   b. (i), (ii) only

   c. (ii) and (iv)only

   d. (i), (iv), (ii) and (iii)

3. Lizards breathe through their

   a. skin b. gills

   c. lungs d. trachea

4. All animals need

   a. food and water only

   b. water only

   c. air, food and water

   d. food only

5. Which animal has the special organs of breathing called gills?

   a. Earthworm b. Fox

   c. Fish d. Frog

6. Choose the set that represents only biotic components of a habitat.

   a. Tiger, Deer, Grass, Soil

   b. Rocks, Soil, Plants, Air

   c. Sand, Turtle, Crab, Rocks

   d. Aquatic plant, Fish, Frog, Insects

7. Which of the following cannot be called as a habitat?

   a. A desert with camels

   b. A pond with fish and snails

   c. Cultivated land with grazing cattle

   d. A jungle with wild animals

8. Birds fly in the air with the help of

   a. heavy and strong bones

   b. soft and thick bones

   c. hollow and light bones

   d. flat and thick bones

9. Paramecium moves from one place to other with the help of _____.

   a. pseudopodia b. flagella

   c. foot d. cilia

10. Kangaroo rat lives in

    a. aquatic habitat

    b. desert habitat

    c. grass land habitat

    d. mountain habitat

II. Fill in the blanks.

1. Water bodies, deserts, mountains are called _____.

2. Based on the number of cells present animals are classified into _____ and _____

3. Tail of a bird acts as a rudder which helps to _____
4. Amoeba moves with the help of _____

III. State True or False. If false, write the correct statement.

1. Habitat is a living or dwelling place of an organism.
2. The geographical features and environmental conditions on earth remain same from one place to other.
3. Amoeba is a unicellular organism and it moves with pseudopodia.
4. Birds can see only one object at a time.
5. Paramecium is a multicelluar organism.

IV. Complete the following.

1. Tropical rain forests, grasslands and deserts are known as _____
2. Some living things are made of a single cell, called _____ organism.
3. The breathing organ of a fish is known as _____
4. The lizard _____ on the ground with its claw on its feet.
5. Camel stores _____ in its hump.

V. Answer very briefly.

1. How do birds catch their prey?
2. Where can we see camels in India?
3. Name the locomotory organ of Amoeba.
4. What are the body parts of a snake?
5. Which structure helps the bird to change its direction while flying in air?

VI. Answer briefly.

1. Differentiate between unicellular and multicellular organisms.
2. Write the adaptive features of polar bear and penguin.
3. Mention the features that help a bird to fly is the air?
4. What are the adaptations seen in different types of vertebrates?

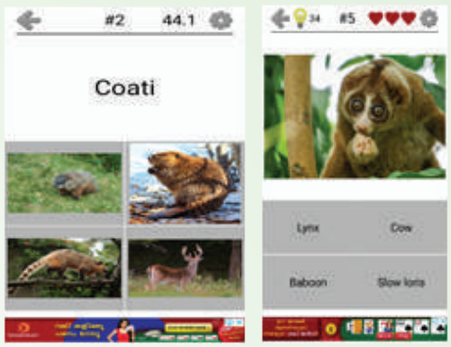
VII. Answer in detail.

1. Describe the various features which help camel dwell well in the desert.

ICT CORNER

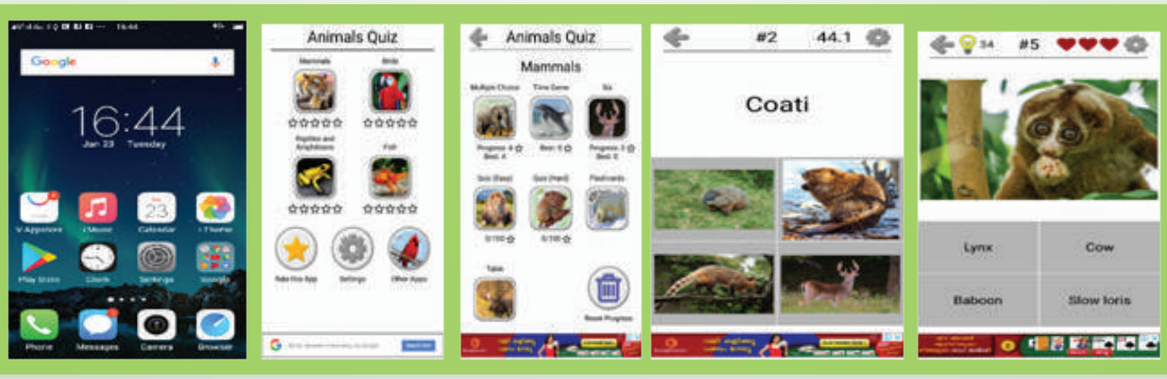
Bio diversity

Lets play animal quiz



Steps:

- Go to Google / browser and type “animal quiz” to know more about the types of animals and their habitation.
- When you get the app, press install button for installing. Then click open and start your game.
- Many options will be displayed on the screen. From that, you select the option of your choice.
- When the choice is selected and the game is started for each animal four options will come. When the correct answer is given it will automatically go to next animal. When the whole episode is over you can go to the starting phase and start the next play.



URL:

https://play.google.com/store/apps/details?id=com.asmolgam.animals

*Pictures are indicative only