Unit 1

Our Environment

Learning Objectives

Q2G3N8

At the end of the lesson the students will be able to

- differentiate biotic and abiotic factors
- understand the interaction between biotic and abiotic factors
- understand balanced ecosystem
- understand the importance of planting trees

I. Environment - Introduction

(Yazhini and her friends are going to school with her father)

Yazhini : Hey! Look at the parrots! Where are they going, daddy?

Father : They are flying towards the pond. Now, they will settle on the trees.

Fathima : Uncle! Uncle! Can you please take us there?

Stephen : Yes uncle. Shall we go and have a look at them?

Father : Oh! Yes!

(They are walking towards the pond)

Yazhini : We should be quiet while walking as, there are not only parrots on the trees but also ant, spider, squirrel, myna and monkey.

Fathima : Oh! Oh! Look at the fish and frog in the pond. I can see a turtle too.

Father : Yes! See how they live in the same place depending on one another.

Stephen : See there, goat and cow are grazing near the pond.

Father : Children, we are getting late. We shall go to school.

Children : Yes uncle. Thank you very much for showing us this beautiful place.

Let Us Try

1. Write the names of the animals that you see in the previous page picture.

_____ _____ _____

_____ _____ _____

_____ _____ _____

2. Classify the following into natural things and man-made things.

(Dam, river, coconut tree, building, jasmine flower, hill, cloud, silver vessel, cell phone, temple, cake, air, sun, ship, water, pencil, book, doll, football, sunflower, crocodile, aeroplane)

Natural things	Man-made things

Let Us Enjoy

Shall we mimic like the animals?

Crow, Cuckoo, Elephant, Parrot, Donkey, Cow, Goat, Dog

Let Us Connect

Match the following sources with their products and uses.

	Sources	Products	Uses
1.		Wind Energy	Jewellery
2.		Minerals	Furniture
3.		Wood	Electricity
4.		Wool / Leather	Food
5.		Crop planting	Clothes

II. Environmental Factors

L8I2G9

Our environment consists of everything around us. It has living and non-living things. We are surrounded by **living things** such as plants and animals and **non-living things** such as water bodies, sunlight, air and land.

The living and non-living things in our environment interact with one another. Our environment is a **wonderful gift** to us given by the **nature**.

More to know

Environmentalist - A person who protects the environment.
As an environmentalist, you can volunteer to protect plants and animals.

Our environment has two main factors:

(i) Biotic factors (ii) Abiotic factors

Biotic Factors

Living organisms in our environment are called biotic factors. **E.g.,** Lion, Plantain, Dove, Human beings etc.




Abiotic Factors

Non-living things in our environment are called abiotic factors. **E.g.,** Air, Soil, Water, Sunlight, Temperature etc.




Difference between biotic and abiotic factors

Biotic Factors (Living things)	Abiotic Factors (Non-living things)
They can breathe and grow	They cannot breathe and grow
They need food to live	They do not need food to live
They can feel	They cannot feel
They give birth to young ones	They do not give birth to young ones

Do You Know?

Plants cannot move around like animals. But they grow and their shoots show movements towards the sun. So, the **plants are also biotic factor.**

More to know

Amoeba is an unicellular organism.
It has the ability to alter its shape.
It was discovered in 1755.

Let Us Try

1. Classify the following as Biotic / Abiotic factors.

Factors	Biotic	Abiotic
Plants, Chair, Fish, Elephant, Washing machine, Peacock, Book, Glass, Chalk piece, Cat, Rain, Frog, Watch, Man, Pen, Lion, Water.		

2. Think and Answer

a. A swing goes to and fro. Is it living or non-living? _____

b. We get wood from trees which are the living things. A chair is made from wood. Is the chair a living thing or a non-living thing? _____ .

Try to Answer

Look at the picture and answer the question.

Which of the non-living things can float?

a. Iron rod

b. Stone

c. Air filled ball

d. Coin

Let Us Try

The following statements describe some of the characteristics of living things. Identify and write the characteristic features using the given hints.

(Characteristics Hints: Move, Breathe, Feel, Needs Food, Grow, Reproduce)

Statements	Characteristics features
Touch-me-not plant closes its leaves when it is touched	
A papaya seed becomes a papaya tree	
A dove flies in the sky	
A cow eats grass	
A cat gives birth to kittens	
Human beings and animals breathe in and breathe out air	

Let Us Play

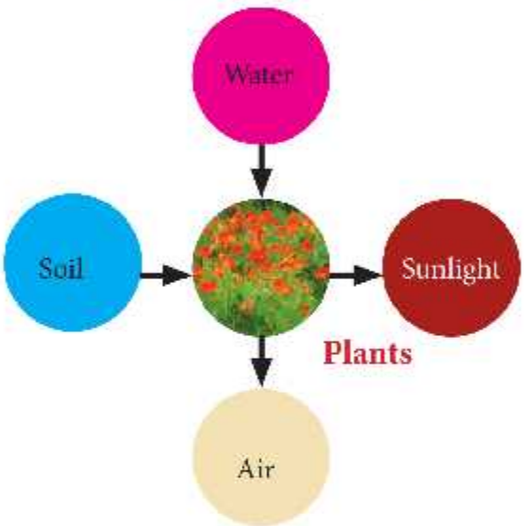
Divide the class into two groups and ask the first group to write any five biotic factors and the second group to write any five abiotic factors seen around the school.

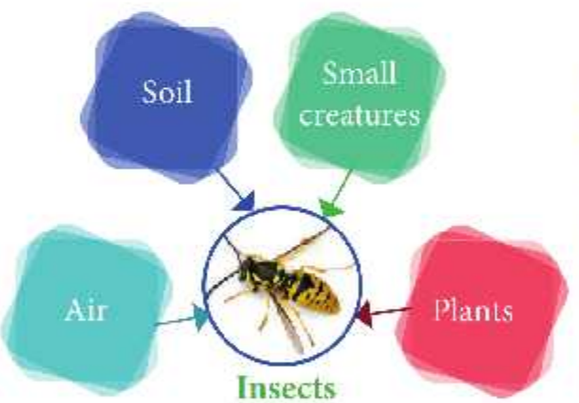
Biotic factors	Abiotic factors

III. Interaction between biotic and abiotic factors

All biotic factors depend upon abiotic factors for their living. Biotic and abiotic factors are **linked to each other by the flow of energy through food.** Plants are the most important among all the living organisms. Because they only can make food from abiotic factors like air, soil, water and sunlight.

A few examples for interaction between biotic and abiotic factors are given below.





From the above picture we understand that plants need water, soil, air and sunlight to live.

Write the needs of the following.

1. Birds : ---------- , ---------- , ---------- , ---------- , ----------.
2. Insects : ---------- , ---------- , ---------- , ---------- , ----------.
3. Human beings: ---------- , ---------- , ---------- , ---------- , ----------.

More to know

Ecology is the science that deals with the relationship between living things and their environment.

Let Us Discuss

1. There is a large banyan tree in a park. Monkeys and birds have made the tree their home. Humans too spend time under the tree. Discuss with your friends, how the tree, monkeys, birds and humans are interdependent.

2. Why is plant the most important living thing?

_____.

3. Discuss in a group and create an interlink of living and non-living factors.

Let Us Try

1. Write the abiotic factors needed for the following biotic factors to survive.

(Air, Water, Sunlight, Soil, Land, Wheat, Fruits, Grass, Hen)

a. Animals: _____

b. Plants: _____

c. Human beings: _____

2. An animal that

a. flies in the air is : ----------

b. lives in water is : ----------

c. moves on the ground is : ----------

d. eats only plants is : ----------

IV. Balanced Ecosystem

Imagine an environment where there are only plants, deer and lions.

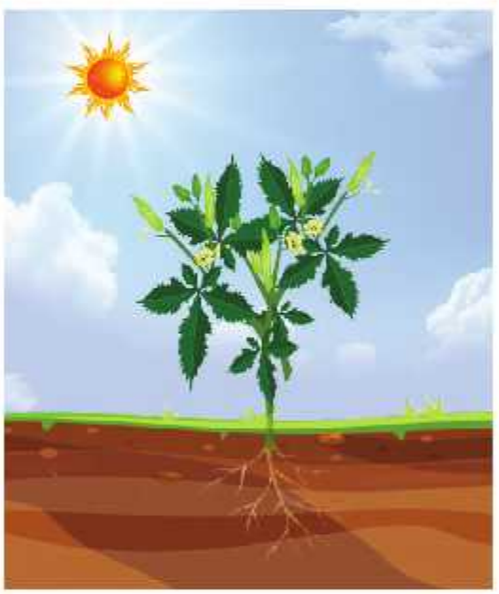
- What will happen to the deer if we remove all the lions?
- What will happen to the plants if there are no lions to eat the deer?
- If all the plants are eaten, what will happen to the deer?

It is important for the food chain to exist in any ecosystem to make sure that the energy flows between the biotic and abiotic factors. A balanced ecosystem supports animals, plants and microorganisms to grow in their environment. **An ecosystem is balanced, when the biotic and abiotic factors are able to cycle the energy and food as per their need.**

The biotic factors in an ecosystem includes **producers, consumers and decomposers.**

1. Producers

The living things that can prepare their own food are called producers. **Green plants** are the **producers**. They make their own food by the process of **photosynthesis**. Hence, they are called **primary producers**. Humans and animals depend on plants for their food.



More to know

A few plants **do not produce their food** and they depend on other plants. They are called **parasitic plants**. E.g., **Cuscuta**

2. Consumers

The **living things that eat the food prepared by the producers** are called **consumers**. Most of the living things depend directly or indirectly on producers for their food. Consumers can be divided into **three types** based on their food as **herbivores** (plant eating animal), **carnivores** (flesh eating animal), **omnivores** (both plant and flesh eating animal).

3. Decomposers

Organisms that **feed on the wastes, dead plants and animals** are called decomposers. They return the nutrients to the soil.

E.g., Bacteria, Fungi.


Bacteria

Let Us Try Classify the following biotic factors.

(Tulsi, Fungi, Mango tree, Rabbit, Eagle, Cat, Dog, Cucumber plant, Human, Grass, Crocodile, Crow, Bacteria)

Producers : ----------, ----------, ----------, ----------, ----------

Consumers : ----------, ----------, ----------, ----------, ----------

Decomposers : ----------, ----------, ----------, ----------, ----------

Let Us Discuss 1. Let us discuss and write.

Plants and human beings are living things. Why do human beings depend on plants?

_____

_____

2. Divide the students into three groups and give them some pictures of living things. Ask them to classify the pictures based on their food habits.
3. Take your students outside the classroom or to a park. Ask them to note down the producers and consumers they could identify there.

Let Us Try The names of several natural resources are hidden in the box below. Find as many as possible. Some words are repeated.

O	R	X	S	E	P	L	A	N	T
A	T	Y	E	N	O	U	F	C	S
N	R	Z	A	U	N	L	A	K	E
I	E	S	N	L	D	E	S	E	A
M	E	P	M	L	T	W	U	S	J
A	R	E	T	A	W	Z	N	B	H
L	Q	M	B	N	W	A	T	E	R
E	E	R	T	D	I	Y	E	L	X

Let us Connect

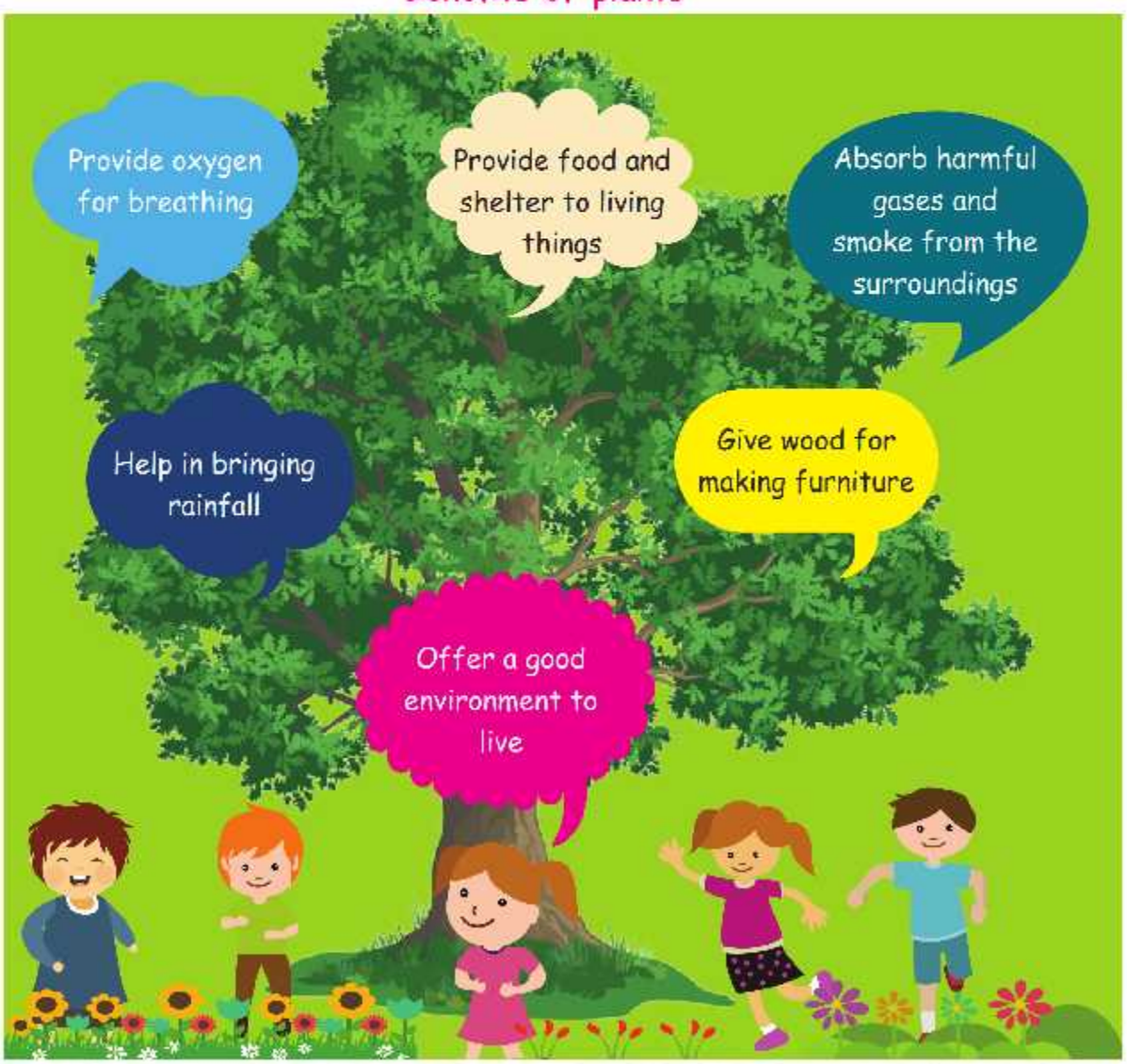
Link the animals as herbivores, carnivores and omnivores.

Cow	Omnivore	Lion
Bear	Carnivore	Elephant
Tiger	Herbivore	Crow

V. Plant Sapling

A young plant with a thin stem is known as a sapling. Survival of living things is impossible without plants. Planting and taking care of plants lead to a good environment.

Benefits of plants



"VAN MAHOTSAV"

Van Mahotsav means, **"Festival of forests"**. It is an annual tree planting movement. This movement began in India in July 1950. This festival is organised during the **first week of July** every year.

To **create awareness** among the people, we can give saplings during celebrations, family functions and national festivals. We can also plant saplings **on our birthday.**

More to know

Some important initiatives to protect our environment.

The Chipko Movement - 1970

The Environment Protection Act - 1986

National Green Tribunal - 2010

Appiko Movement - 1983

Let Us Do

A. Write any two uses of trees.

1. _____

2. _____

B. Conduct an awareness campaign on 'Save Our Environment'.

C. Plant saplings in your school campus.

D. Preparation of seed ball

Take some clay, humus, add water and mix well. After mixing, place the available seeds inside them and make a seed ball. Then dry and keep it safe. Distribute the seed balls to public on special occasions of your school.

E. Write some slogans on 'Save Plants' and paste them on the tree in your school campus/road sides. (E.g., Take care of the Earth and it will take care of you. It's not yours, nor mine, it's ours)

1.

2.

The nature of our future depends on the future of our nature.

EVALUATION

P7N9M8

I. Choose the correct answer.

1. Which of these is an example for biotic factor?
   a. Water b. Goat c. Air

2. Our environment is surrounded by_____.
   a. biotic factors b. abiotic factors c. both biotic and abiotic factors

3. Human beings depend on _____ for their food.
   a. plants b. soil c. wood

4. _____ are the primary producers.
   a. Non green plants b. Green plants c. Dry leaves

5. Which is an example for decomposer?
   a. Mango tree b. Bacteria c. Deer

6. Which of these living things would die if there were no green plants on earth?

(a) a and c only (b) b and d only
(c) d and a only (d) a, b, c and d

II. Fill in the blanks.

1. _____ is a consumer. (Cow / Soil)
2. A young plant is known as _____. (tree / sapling)
3. Planting of sapling provides _____. (oxygen / land)
4. World Environment Day is _____. (June 15th / June 5th)
5. _____ get food from dead plants and animals. (Decomposers / Producers).

III. Match the following.

1.	Stone	-	Consumer
2.	Bacteria	-	Abiotic factor
3.	Plants	-	Decomposer
4.	Buffalo	-	Producers

IV. Say true or false.

1. Abiotic factors are important for biotic factors.
2. River is an example for biotic factor.
3. 'Van Mahotsav' is organised during the first week of July every year.
4. Plants are the consumers.
5. Plants provide food and shelter to living things.

V. Answer the following.

1. Vijay placed two things 'P' and 'R' (one living and one non-living) in separate cages with food and water.

Number of weeks	Weight of 'P'	Weight of 'R'
Week 1	2 kg	1.5 kg
Week 2	4 kg	1.5 kg
Week 3	6 kg	1.5 kg
Week 4	8 kg	1.5 kg

   a. Which thing is likely to be a living thing? Give reason for your answer.

   b. What will be the weight of living thing in week 6?

2. Write two examples for biotic and abiotic factors.
3. Write any three differences between living and non-living things.
4. List the abiotic factors needed for insects.
5. What are the biotic factors of a balanced ecosystem?
6. Why plants are called primary producers?
7. Write any four benefits of plants.

VI. Project

Make an album by collecting pictures of different kinds of biotic and abiotic factors.

Unit 2

Animal Life

Learning Objectives

At the end of this lesson the students will be able to

- differentiate various habitats of animals
- understand the food procurement of animals
- identify the eating habits of animals in their surroundings
- know the mouthparts of birds and insects
- realize the importance of food chain and food web in the environment

W5Z6Z4

Warm-up

Identify and write the names of the animals by using the keywords given.


Snail

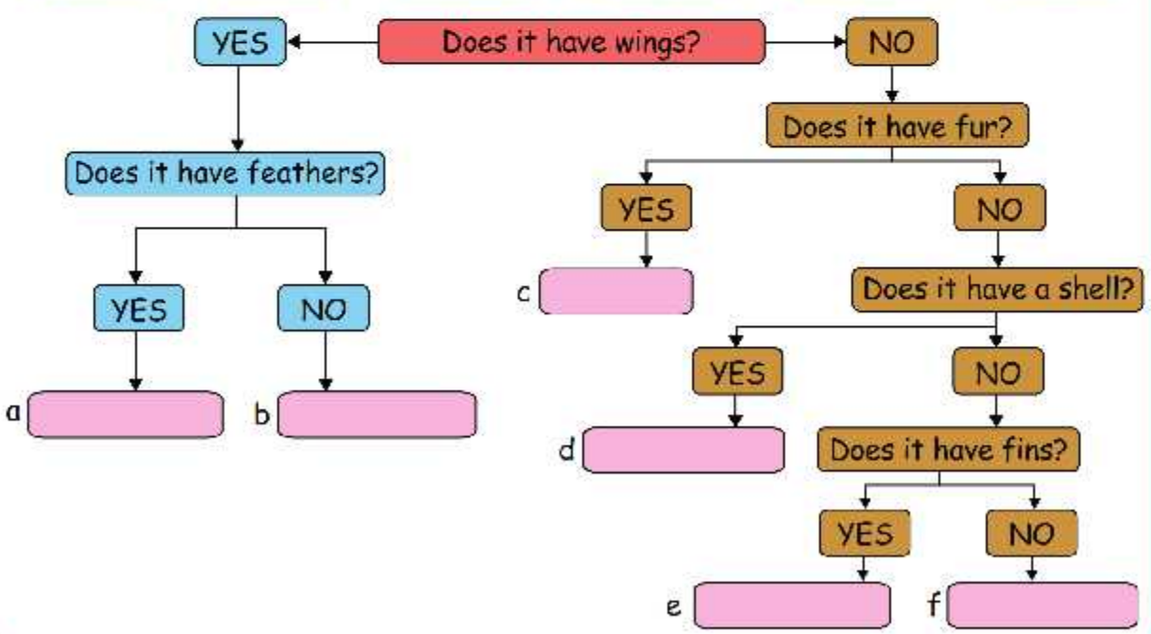

Parrot


Crocodile


Dragonfly


Tiger


Fish



I. Animals in Different Environment

Our Earth provides place for lakhs and lakhs of animals to live. **The living place of an animal or a plant is called habitat.** The basic needs such as food, water, shelter and place to breed are found in a habitat.

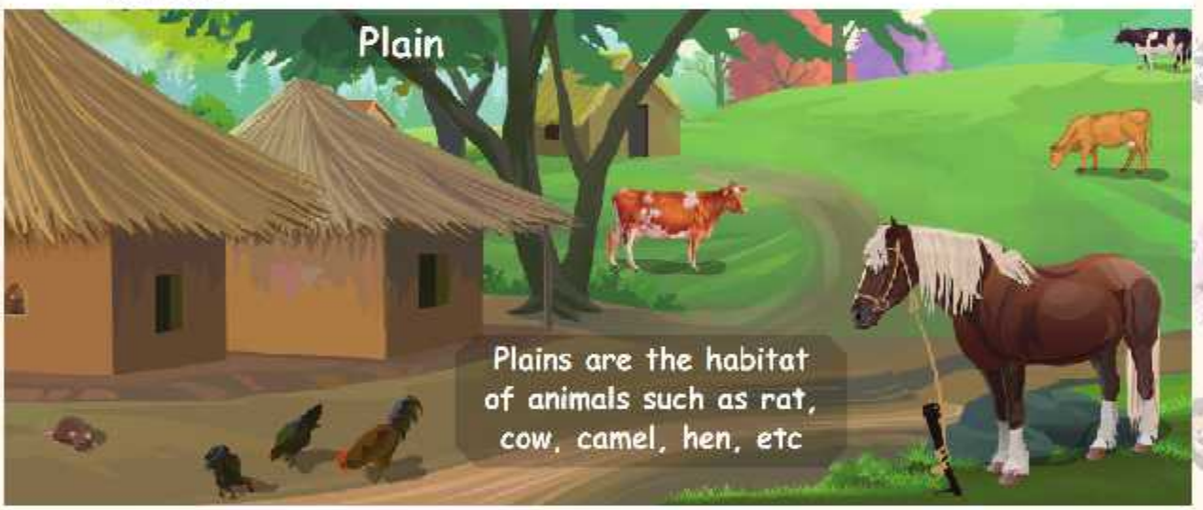
Habitat can be as big as a forest or as small as a leaf. Animals live in different conditions. For example, whales live in sea (water) and foxes live in forest (land).

Land (Terrestrial) Habitat

Animals that live on land are called **terrestrial animals**. E.g., Ants, Cats and Lion.

Some of the land habitats are:

1. Plains
2. Forests



Water (Aquatic) Habitat

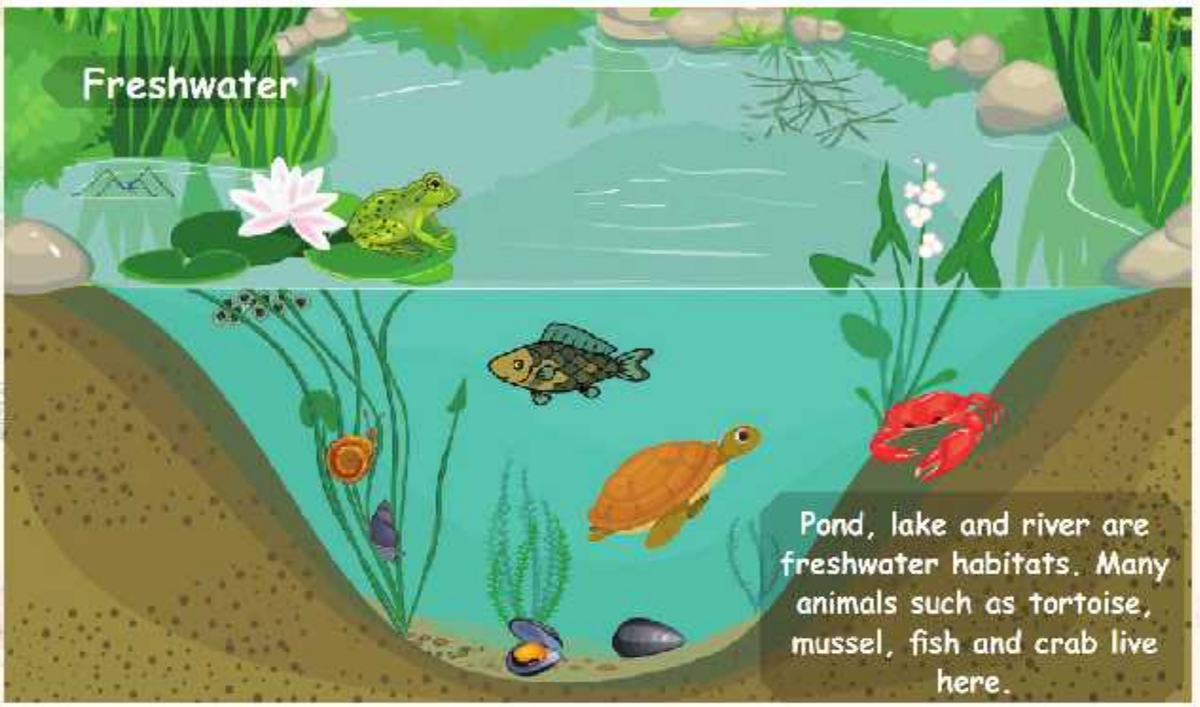
Animals that live in water are called **aquatic animals**. E.g., Fish, Dolphin and Crab.

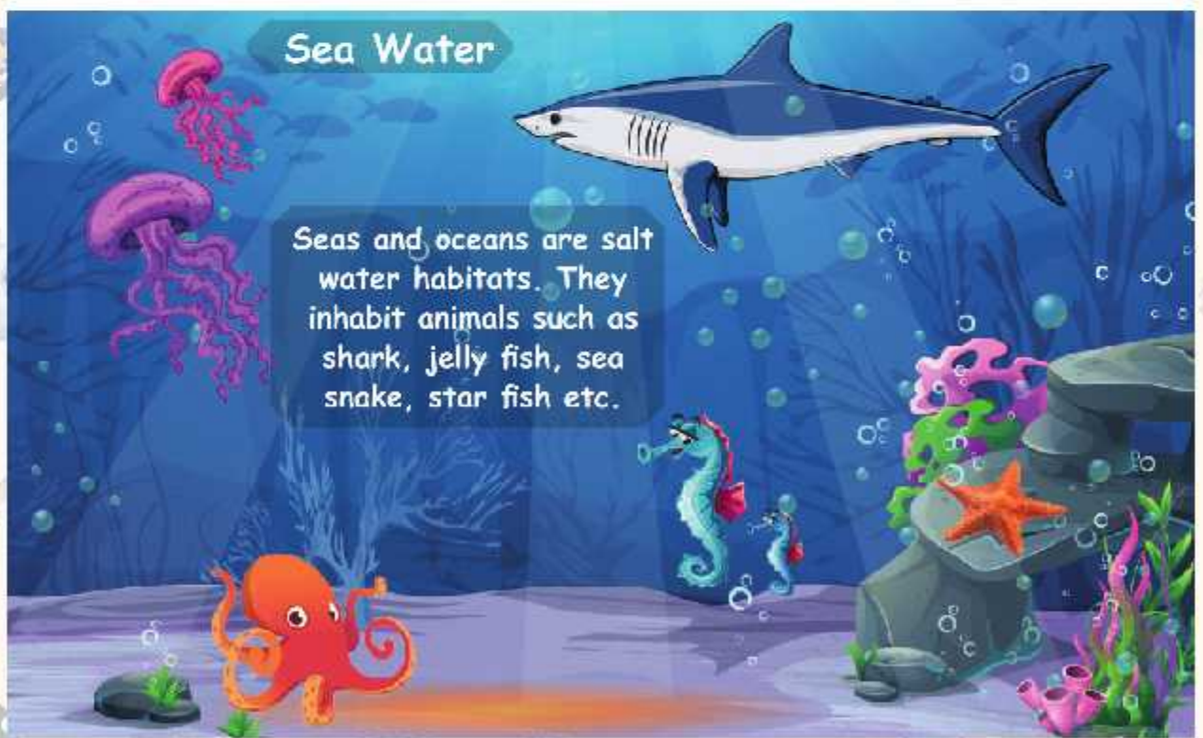
Water habitat is divided into two types:

1. Freshwater
2. Marine (Sea water)

Do you know?

World animal day is observed on 4th October.





Let Us Connect

Link the animals that live in water and live on land.

Pig Mussel Deer Starfish Dog Whale Frog Tiger

Monkey Crab Camel Horse Seahorse Lion Elephant Cow

Let Us Help

There is a zoo near your town. Due to some reasons, they have to take the animals back to their habitat. Where will they take each of the following animals?

(Tiger, Crab, Turkey, Giraffe, Cat, Fish, Bear, Donkey, Camel, Crow, Zebra, Duck, Elephant, Tortoise, Pig, Peacock, Lion)

Plains	Forests	Ponds

Let Us Find

A) Circle the odd one based on habitat.

a. Lion, Elephant, Monkey, Whale

b. Shark, Dog, Jelly fish, Star fish

B) Write the names of the animal with the help of the clues given.

(Penguin, Whale, Octopus, Duck)

1. ..... has eight arms. It lives in the ocean.

2. 

..... cannot fly, but it swims very well.

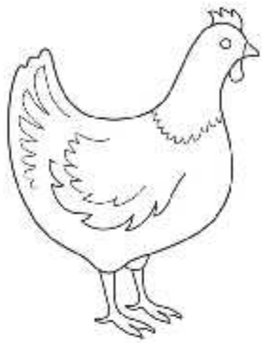
3. ..... is the largest animal in the sea.

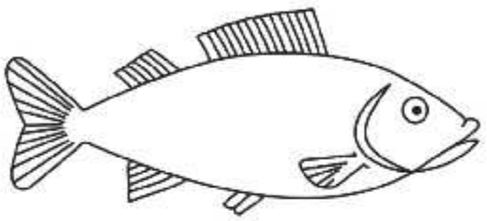
4. 

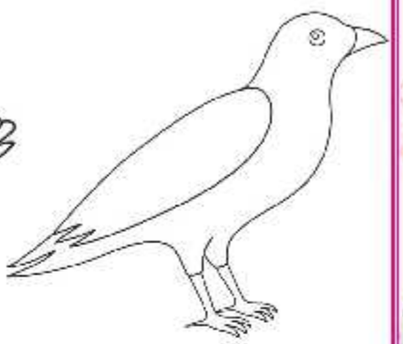
..... is a common water bird.

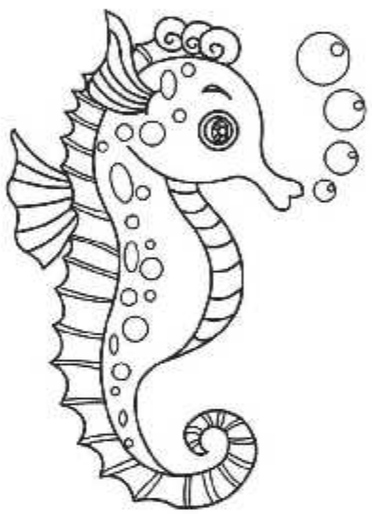
Let Us Do

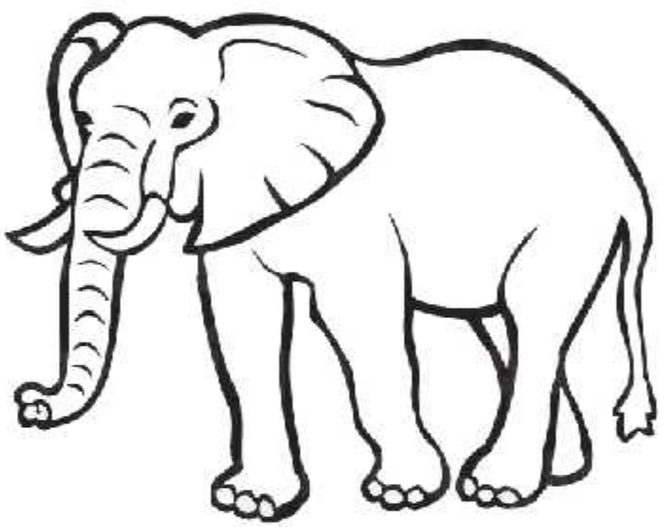
Colour the animals that live in water.

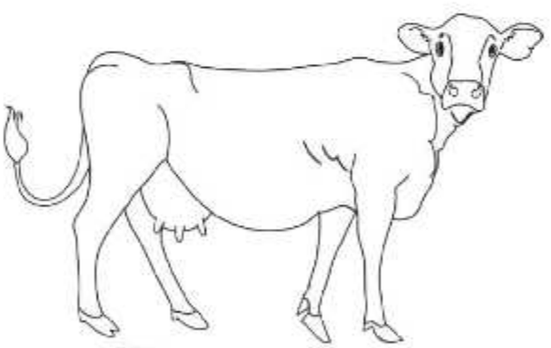


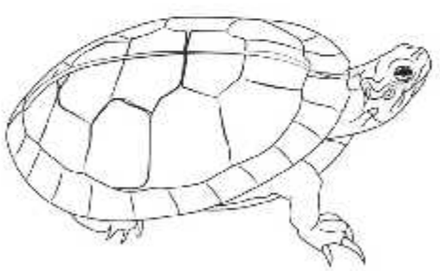


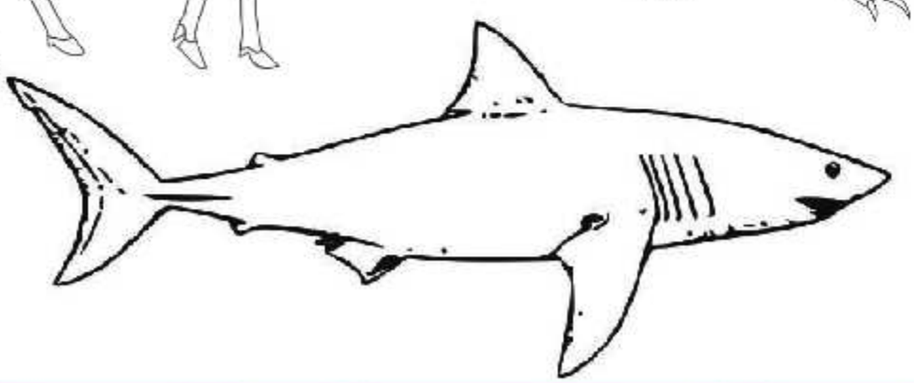






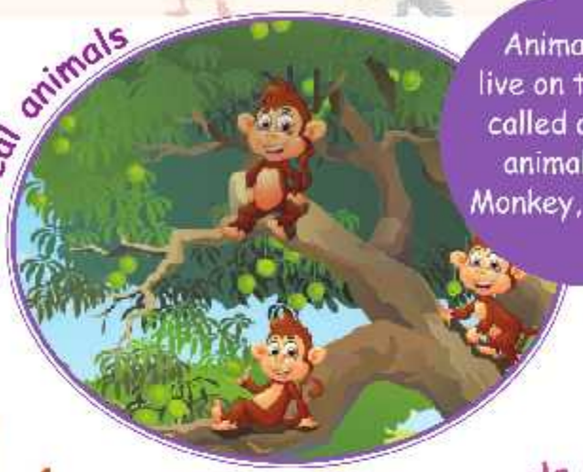






More to know

Arboreal animals

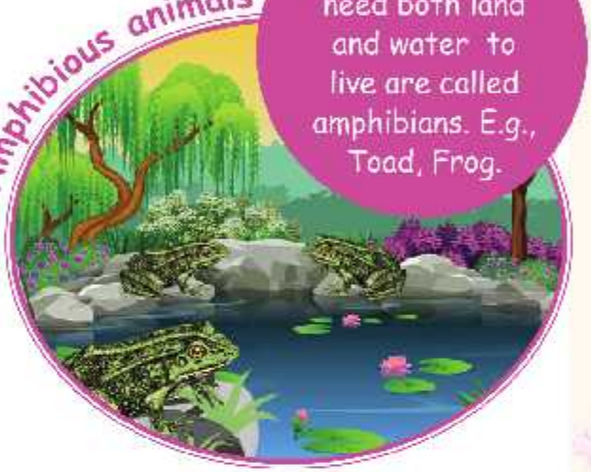


Animals that live on trees are called arboreal animals. E.g., Monkey, Squirrel.

Aerial animals

Animals that can fly most of the time are called aerial animals. E.g., Crow, Dove.

Amphibious animals



Animals that need both land and water to live are called amphibians. E.g., Toad, Frog.

Let Us Connect

Match the animals with their living place.

Forest

Polar region

Salt water

Fresh water

Desert

Let Us Connect

Match these animals with their homes.

Honeybee

Spider

Lion

Fish

Bird

Earthworm

II. How do animals get their foods?

Write the foods of given animals using the following words.

(Carrot, Deer, Milk, Grass, Grains)

....

Think and share. Why should animals get food?

Animals cannot make their own food. They depend on plants or other plant-eating animals for their food. They move in search of food.

Let us discuss the following and complete the sentence.

(earthworm, butterfly, mosquito, spider, elephant, lion, hen)

I am a _____.
I am the king of the forest.
I eat animals like deer, zebra and giraffe by hunting them.

I am a female _____.
I suck blood from animals. But males of my family feed on plant juices.

I am a_____.
I suck nectar from flowers.

I am a _____.
I eat cereals, small insects, earthworms etc.

I am a _____.
I eat small insects that fall in my web.

I am an _____.
I feed on coconut leaves, plants, sugarcane, banana etc. I use my trunk to take my food.

I am an _____.
I ingest soil with organic wastes and microbes.

Let Us Connect

Help the animals to find their food. Use different colour for each animal.

Let Us Do

Complete the worksheet using the following hints.

(Tiger, Lizard, Deer, Dove, Honeybee, Butterfly, Goat, Fox, Squirrel, Woodpecker)

Worksheet

Name : _____ Date : _____

1. Grain eating animals : _____ , _____

2. Plant eating animals : _____ , _____

3. Flesh eating animals : _____ , _____

4. Honey eating animals: _____ , _____

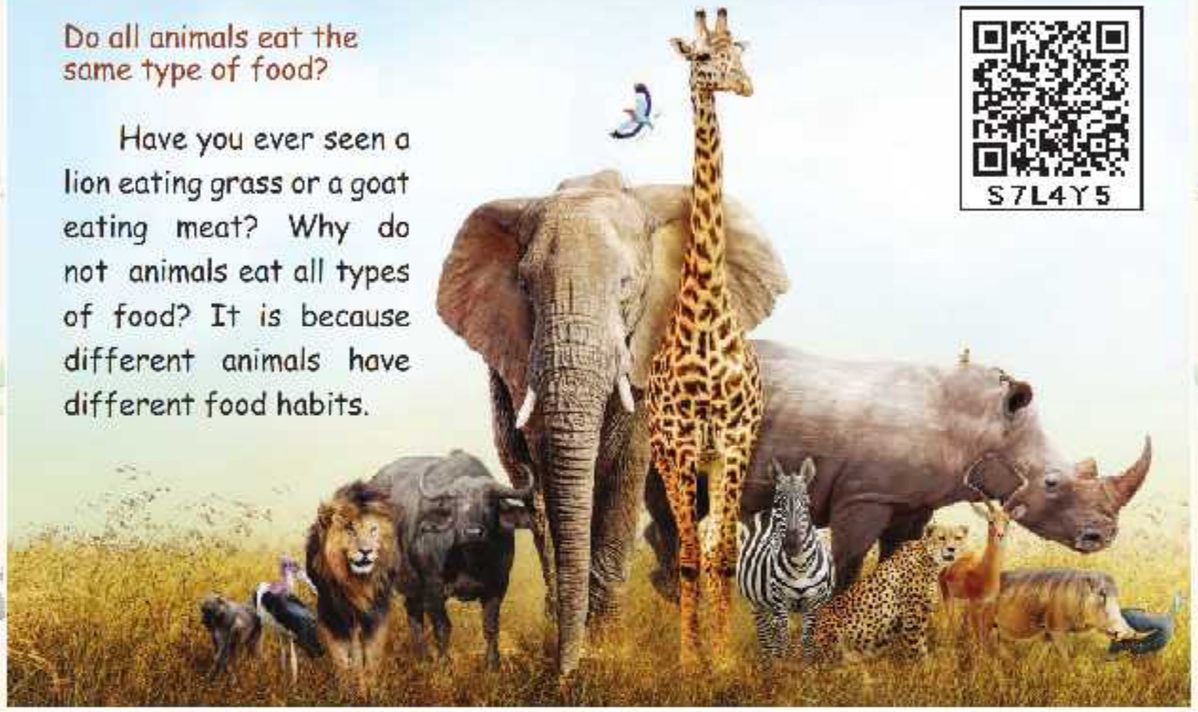
5. Insect eating animals: _____ , _____

III. Classification of animals based on their eating habits

Do all animals eat the same type of food?

Have you ever seen a lion eating grass or a goat eating meat? Why do not animals eat all types of food? It is because different animals have different food habits.

S7L4Y5



Herbivores

Animals that eat only plants are called herbivorous animals or **herbivores** (Plant eaters). E.g., Deer, Giraffe, Cow, Goat and Elephant. They have sharp, straight edged, **flat front teeth called incisors** to bite the grass and leaves.

Let us think

Elephant is a herbivore. But its front teeth are not flat. How can we call them?

Carnivores

Flesh eating animals are called carnivorous animals or carnivores. E.g., Hyena, Tiger, Lion, Cheetah and Seal. They have sharp, pointed teeth called canines. Canines are used to tear the flesh of animals.

Forest - A natural home for wildlife

Omnivores

Some animals eat both plants and the flesh of other animals. These animals are called omnivorous animals or omnivores. E.g., Bear, Man, Crow, Hen and Fox. These animals have a combination of tearing, biting and grinding teeth.

Think and Answer

You tell your friend that you are an omnivore.
But he tells that he is an herbivore. It is right or wrong? How?

More to know

- Animals that hunt other animals are called **predators**
- Animals that are hunted are called **prey**.

Let Us Connect

Observe the pictures and draw a line to connect them to the appropriate jars.

















Do you know?

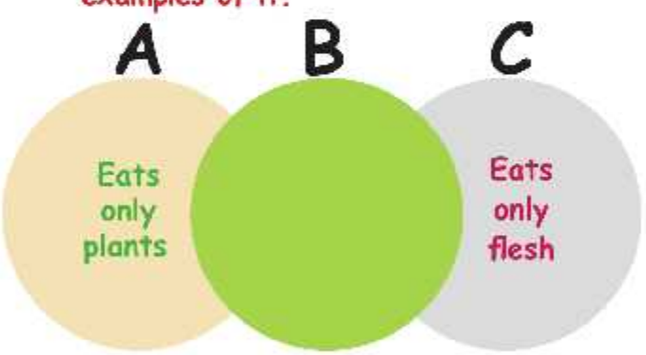
- An adult elephant can eat upto 136 kg of food in a day.
- Some of us have colourful fishes in our homes as pets. We keep them in small water tank known as aquariums.

Let Us Find

Circle the foods that the animal will eat.
You can choose more than one, if applicable.

Let Us Find

From the given diagram, identify which animal group is represented by 'B' and write three examples of it.



Examples : ..... , ... , ...

Let Us Play

Play in pairs. Think of a wild animal. Give three hints to your friend about the animal and let him or her guess its name. Take turns.

IV. Mouth parts of animals

(Conversation between teacher and students)

Teacher : Do you know the parts in your mouth?

Pandiyan : Lips, teeth, tongue.

Teacher : Good. Do you know the use of teeth?

Vennila : They cut and chew the foodstuff.

Teacher : Fine. Are all the teeth have same size and shape?

Vasu : No, Madam.

Teacher : Yes. The teeth have different shape and size based on their functions. Today, we will learn more about these mouth parts. Mouth parts are different parts of the mouth that are adapted based on the nature of food that the animal eats.

The elephant uses its trunk for picking up food and sucking water.

Dogs and cats lick liquids with the help of their tongue.

The butterfly has a tube like structure (proboscis) to suck nectar from flowers.

The mosquito has a needle like structure to suck blood.

The lizards and frogs have a sticky tongue to catch insects.

Watch and Learn

Look at flowering plants near your school or home. Watch the butterflies which visit those plants. Do they come at all times in a day? Do they sit still or fly from flower to flower?

Think and Answer

Have you ever wondered why birds have beaks of different shapes and sizes?

Beaks of Birds

Eagle

Eagle has strong, sharp, curved beak to catch prey and tear its flesh.

Kingfisher

Fish-eating birds have spear-like beaks designed for stabbing fish.

Parrot

The hooked, sharp beak of parrot helps to collect and eat the grains.

Woodpecker

Strong chisel beak of woodpecker is used to make hole in the trees and catch small insects.

Sparrow

Sparrow has short, conical beak which helps to crack open the shells and extract the inner nut or seed.

Duck

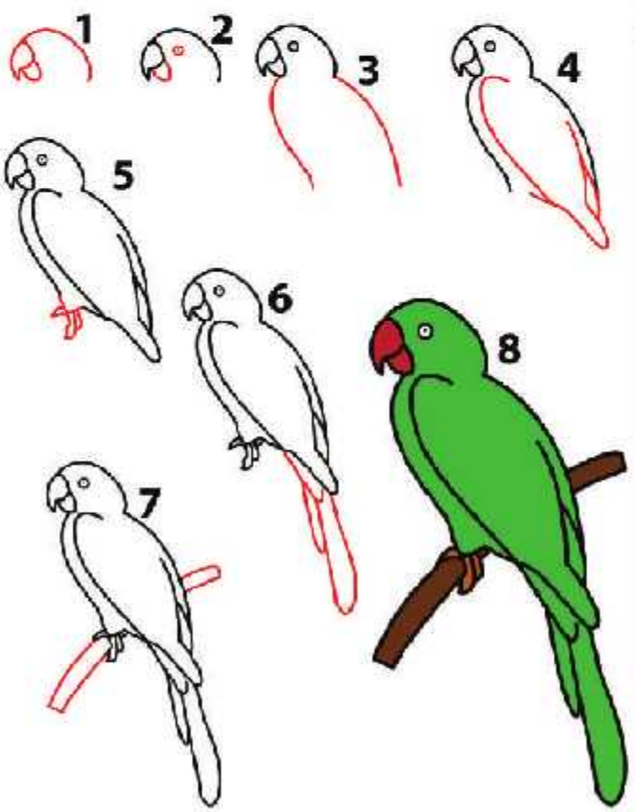
Duck has flat beak that helps to grip plant and insect from water.

Let Us Draw

1. Draw the beaks of birds which perform the following functions.

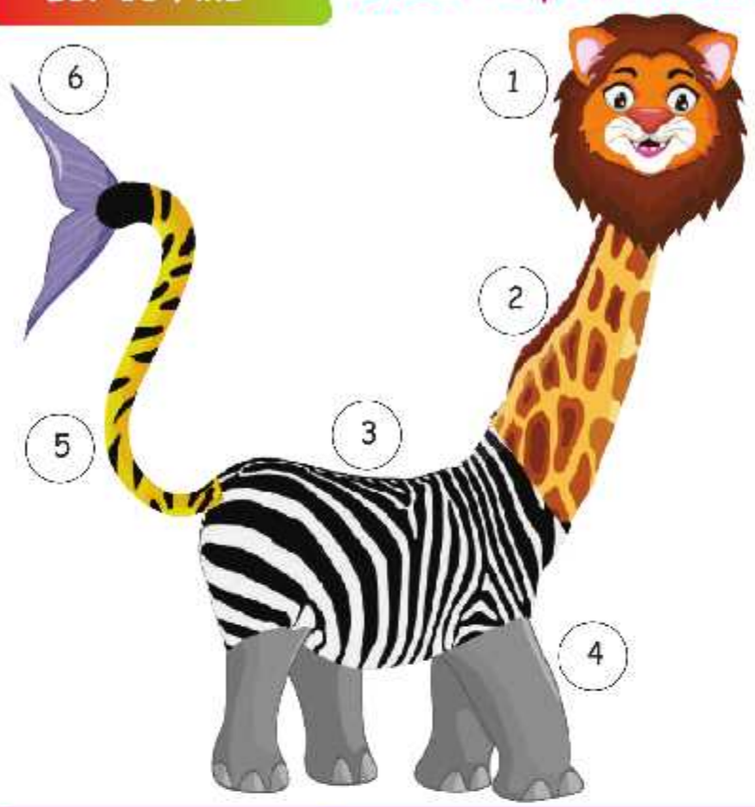
Eat Grains	Eats Flesh

2. Draw and colour a parrot.



Let Us Find

Observe the picture and name the animals in it.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

V. Food Chain

When you look around you can see the following.

The grass is food for deer and deer is food for tiger.

Plants are food for grasshoppers and grasshoppers are food for bird.

From these examples, we observe that plants are food for many animals, which in turn become food for other animals.

G3P1W3

Let us look at the picture below:

Grass → Deer → Tiger

This is a food chain. It gives us information on how living things are related with one another by the food they eat. Here the grass is eaten by deer. The deer is eaten by the tiger.

A food chain usually starts with plants and ends with carnivores or omnivores.

Other examples for food chain.

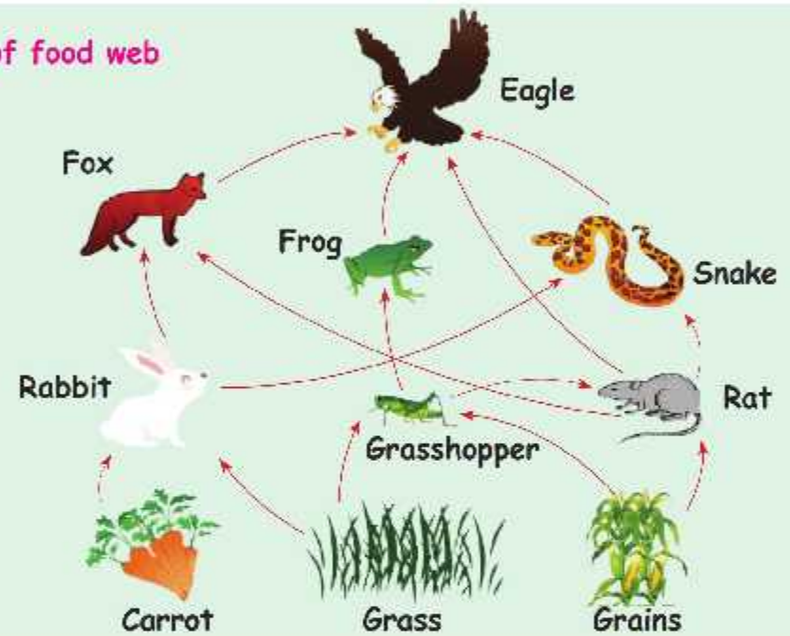
1. Leaves → Caterpillar → Hen → Hawk
2. Grass → Grasshopper → Rat → Owl

Food Web

Every organism can feed on different kinds of food. So a single organism will be a part of many food chains. These food chains are interconnected to form a web.

Hence, a Food web is an interconnection of multiple food chains. Transfer of energy between organisms of different energy sources occurs through food web.

Example of food web



Try to Answer

1. Select the food chain that can exist in nature.

A. Grass → Wheat → Grasshopper → Frog → Snake

B. Grass → Rabbit → Fox → Lion

C. Wheat → Grasshopper → Snake → Frog

2. Form any two food chains using the following.

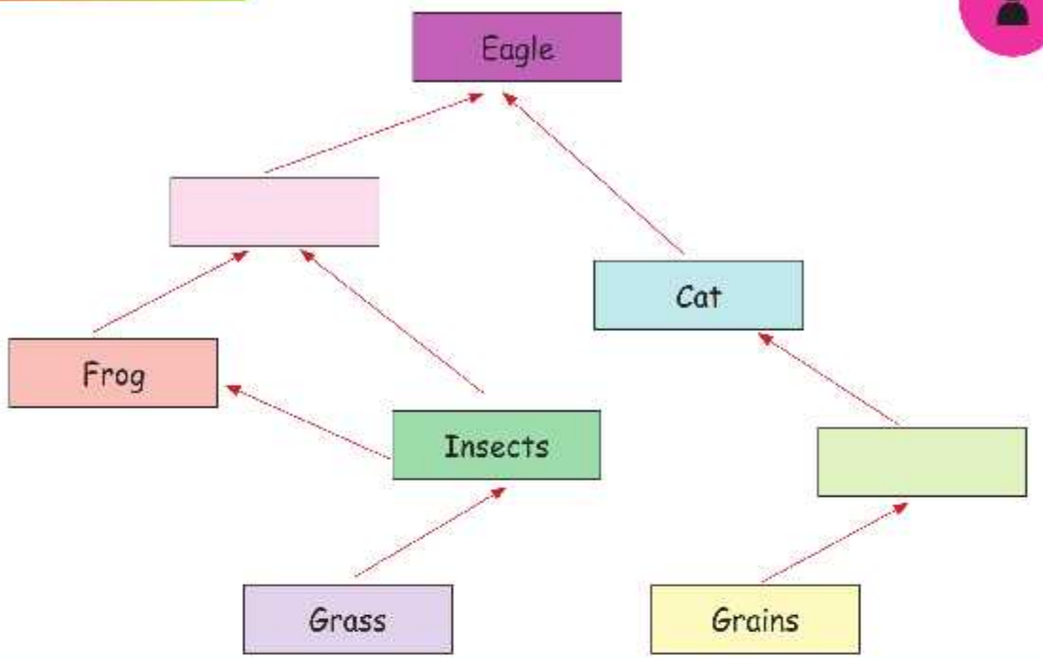
(Grass, Tiger, Deer, Dolphin, Fish, Insect, Snail, Plant, Kingfisher)

Food chain 1:

Food chain 2:

Let Us Complete

Complete the food web.



EVALUATION

G5S4A9

I. Choose and write the correct answer.

1. Mosquito sucks its food. Which of the animals given below suck their food?

   a) Cockroach b) Parrot c) Butterfly

2. Bear sometimes eats pumpkin and sometimes eats fish. So, it is an _____.

   a) Carnivore b) Omnivore c) Herbivore

3. A bird that has beak which helps it to crack open shells and eat the seed inside is

   a) Sparrow b) Owl c) Kingfisher

4. Flesh eating animals have well developed _____.

   a) Molars b) Tusks c) Canines

5. Elephant is a _____.

   a) Herbivore b) Carnivore c) Omnivore

6. Choose the carnivore.

   a) Deer b) Lion c) Giraffe

7. In a food chain, a _____ can be placed immediately before a snake.

   a) Eagle b) Frog c) Grass

8. Select the animal that has similar eating habit like a bear.

a) Camel b) Deer c) Hen

9. Find the odd one based on the habitat.

a) Deer b) Fish c) Fox

10. Which of the following has different eating habits compared to the others?

a) Elephant b) Cow c) Dog

II. Fill in the blanks.

1. A small habitat is _____ (forest / leaf).
2. Butterflies suck _____ (nectar / water) from flowers.
3. Chisel beak is present in _____ (sparrow / woodpecker).
4. The parrot eats _____ (rats / nuts).
5. A food chain always begins with _____ (plants / animals).

III. Answer the following questions.

1. Land and water are common habitats. What is a habitat?
2. Give two examples for each.

   a. Terrestrial Animal : _____, _____.

   b. Aquatic Animal : _____, _____.
3. Why animals move from place to place?
4. Nectar is the food of butterfly. Then, what is the food of earthworm?
5. Differentiate a herbivore from a carnivore.
6. Is human an omnivore or carnivore?
7. Give an example of a food chain.
8. Choose the correct food chain from the following.

   a. Leaves → Bird → Insect

   b. Insect → Leaves → Bird

   c. Leave → Insect → Bird

IV. Project

Collect and paste the pictures of plant eating animals and flesh eating animals.

Unit 3

Air

Learning Objectives

At the end of the lesson the students will be able to

- understand the properties of air through experiments
- understand the process of breathing in human beings
- identify the types of wind with respect to speed

F8W7V3

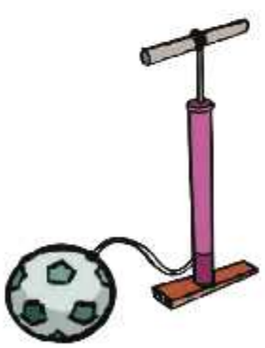
Warm - up

Try Us Answer Observe the pictures and answer the given question.

Blowing balloon

Flying kite

Making bubbles



Filling the ball

What is necessary for these activities? _____.

I. Properties of Air

Air is a natural resource. We cannot live without it. It is present around us. It has no definite shape and colour. Air has weight and it occupies space. We cannot see air but it can be felt. Air can flow everywhere.

Air occupies space

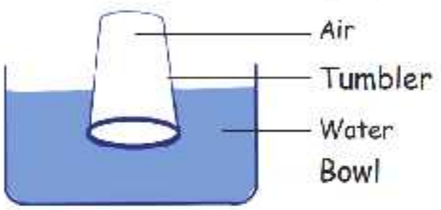
Note for teacher: Demonstrate all the given activities in the classroom.

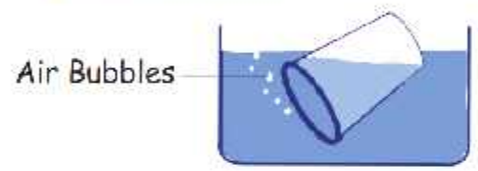
Q6W4H8

Materials required: A tumbler, a bowl and water

Procedure:

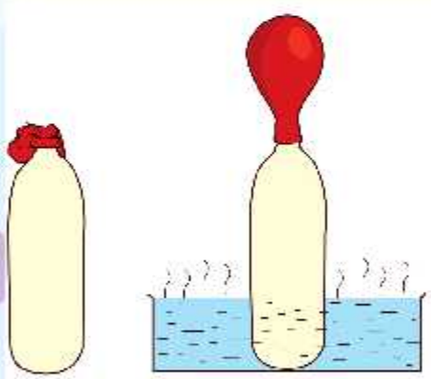
Place a tumbler on the surface of the water kept in a bowl (see picture). Push the tumbler straight into the water. Now, tilt it slightly and push it into the water. Do you observe any difference? Yes air bubbles come out of water.





Through this experiment we can understand that air occupies _____.

Hot air rises up



Tie a balloon to the mouth of a bottle as shown in the picture. Let the mouth of the bottle be narrow. Keep the bottle in a vessel containing hot water. Observe it for some time. The balloon expands. Why?

Due to the heat of the water in the vessel, air inside the bottle becomes hot. Hot air fills the balloon. Therefore the balloon expands.

What do you understand from this experiment?
Hot air rises _____.

Air has weight

Procedure:

Take two balloons. Fill air in one balloon and keep the other balloon as it is. Make a measuring tool using a stick and tie the balloons on both the ends as shown in the pictures. Which balloon comes down and why? Do and find.

This experiment proves that air has _____.

Try to Answer

a. **Write true or false for the following statements.**

1. Air occupies space but has no weight. .....
2. Air is colourless. .....
3. Air has definite shape. .....

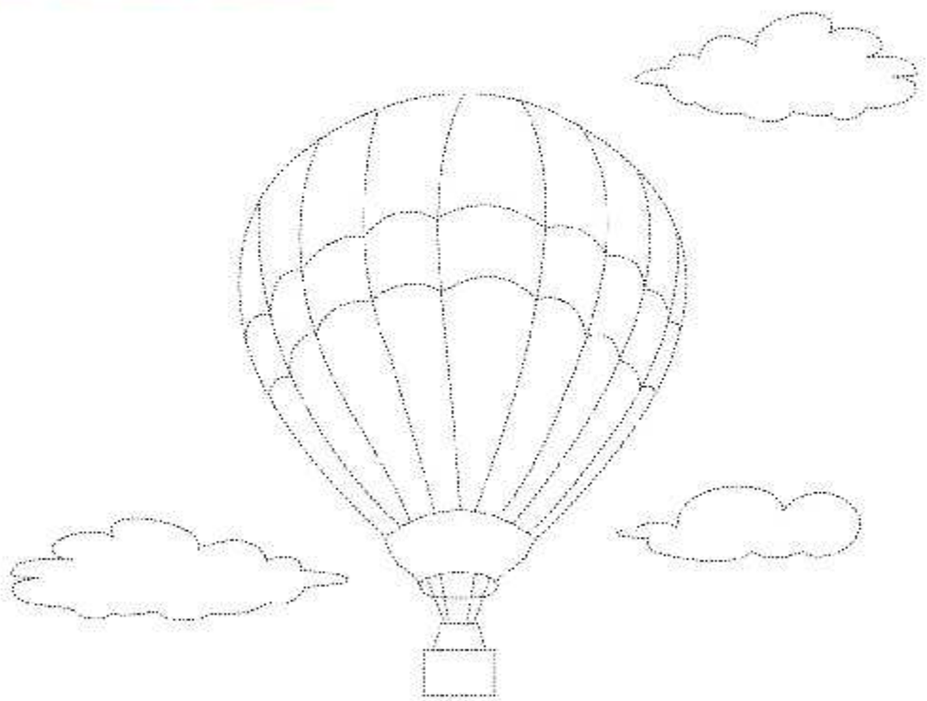
b. **If we fill air in the -------- , it will change its shape.**

1. jar 2. jug 3. ball

c. **Which of the following is required for good health?**

1. Dust 2. Clean air 3. Smoke

d. **Colour the hot air balloon.**



II. Air moves and pushes things

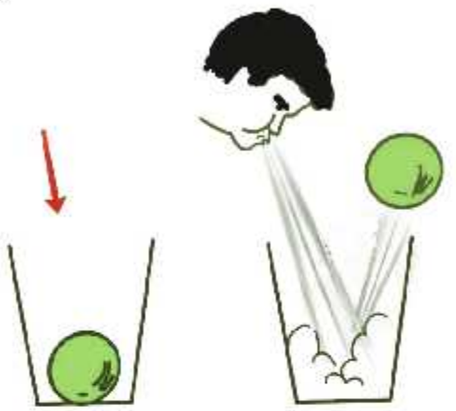
Light an incense stick in the corner of the classroom and observe. The smoke of the incense stick moves everywhere. The air pushes the smoke.

See the clouds in the sky that moves everywhere. Clouds move because of the movement of air.

Electricity is generated from wind with the help of the windmills.

Let Us Do

Can you remove a small plastic ball from a glass vessel without physically touching it? Yes, you can. If you blow towards one wall of the glass very hard and the ball will be ejected out of the glass.



Let Us Do

Take a plastic bottle and fit a soggy newspaper pellet tightly in its mouth. On pressing the bottle, the pellet will come out with a loud POP sound.

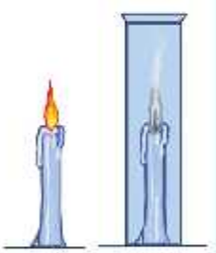
Let Us Try

Make a paper plane with waste paper and fly it in the air.

These activities conclude that air _____ the things.

Air is required for burning

Light a candle and place it on a table. Now cover the lightning candle with a glass jar. Observe what happens?



_____ is required for burning things.

Air exerts pressure

When you drink fresh juice, you suck it through straw. We do this with the help of air.

How does a straw work?

Mix a few drops of ink in half a glass of water. Place a transparent straw inside the glass containing coloured water. Then place your finger on the top of the straw and pull the straw out of the liquid. What happens?

Then remove your finger from the straw. What happens? While your finger covers top of the straw, the liquid remains in the straw. When you remove the finger, the water flows out.

When you keep your finger on the straw, you are lessening the pressure of air over the straw. The greater pressure of air under the straw can hold the liquid inside the straw.

Let Us Do

Air Jack

Materials required: Empty plastic milk cover, a piece of thick string and an old pen body or pipe.

Procedure: Tie an old pen body or a pipe to the mouth of the milk cover with a string. Place 3 or 4 thin note books up on the plastic milk cover and slowly blow air into it with your mouth. As the cover gets inflated the books get raised. How does that work? The pressure that you exert with your mouth is limited. But the large area of the milk cover magnifies this pressure and lifts the books.

The above activity shows that _____.

1. Air rises up on getting warm
2. Air is needed for burning
3. Air has pressure

III. Breathing (Inhalation and Exhalation)

Let Us Do and Discuss

- Keep your finger near your nose and breathe. Do you feel air on your fingers?
- Try to count how many times you breathe in a minute.
- Now jump 6-7 times. Is your breathing rate the same or is it faster?
- Run 100 meters and stop. Observe your breathing.

All living things need air for their survival. Plants breathe through leaves and fish breathe through gills. Humans breathe in and breathe out through lungs.