

3

FORESTS

A **forest** is an area where the earth is covered mainly by a very large number of trees. The very large number of trees, in a forest, support many life forms.

Trees are an important component of the forests. They clean the air, cool it on hot days, conserve heat at night and act as excellent sound absorbers.



Forest

Forests create a special environment, which in turn, affects the kinds of animals and plants that live and survive there. Forests develop at places where the average temperature is greater than 10°C and where there is an annual rainfall of at least 200 mm.

For early man, forest was his home where he got food and shelter.

Human beings and forests have always had a complex relationship. We have always been dependent on forests for getting clean air, food, fuel, water, shade and shelter. Thus, forests play multiple roles to take care of our basic needs.



Let us now try to understand how forests play all these roles.

ADVANTAGES OF FORESTS

Forests help us in the following ways:

- ◆ The trees purify the air by absorbing carbon dioxide and releasing oxygen. This helps to maintain the climate balance over a large area.
- ◆ Trees also help in checking global warming by absorbing carbon dioxide which is the main greenhouse gas.
- ◆ Forests act as natural absorbers of rain water. The soil, held by roots of trees, soaks in the rain water. A large portion of rain water seeps down the soil. This recharges the ground water.
- ◆ Forests prevent soil erosion. Trees bind soil particles with their strong roots. This prevents soil from being washed, or blown away.
- ◆ Forests prevent floods as the soil, held by roots of trees, absorbs running water and prevents floods.
- ◆ Forests help to bring good rainfall. This leads to more greenery around and better crops.
- ◆ Forests also serve as home to many types of animals. These include mammals, reptiles, insects, birds and wild animals.

FOREST PRODUCTS

Forests provide a number of things that are used by humans. Some forest products are:

1. **Wood/Timber:** Wood, obtained from trees in forests, is used for making furniture. It is also used for making paper and as a fuel.



2. **Medicines and spices:** A number of medicines are obtained from forests. Medicinal plants, like *amla*, *aswagandha* and *brahmi*, grow in forests. Some spices are also obtained from forests.



Amla



Aswagandha



Spices

3. **Gums, resins and dyes:** Gums are used for making adhesives and in medicines. Some varieties of gums are used as food. Many resins are used to make varnish and paint. Many dyes, used to colour clothes and paper, are also obtained from forests.



Resins



Powder Dyes



Gums

4. **Special leaves:** Areca nut leaves are used to make disposable plates. *Tendu* leaf is also called **green gold** of Odisha. The leaves of *Tendu* are used for particular wrapping purposes.



Tendu leaves



Binding tendu leaves

5. **Honey:** Large beehives are found in forests that are used for extraction of honey. Bees' wax is used in cosmetics and medicines.



6. **Bamboo:** This plant is used for making baskets, boats, bridges, buckets, cloth, cooking utensils, fishing rods, handicrafts, musical instruments, paper, furniture, toys, umbrellas and walking sticks. It is also used as food.



Do You Know?

Bamboo is a very useful plant. It is also used for making blinds, brushes, canoes, carts, charcoal, chopsticks, cooking utensils, fans, fences, firewood, food steamer, furniture, garden tools, hats, incense, particle board, pens, pipes, ply, roofing, scaffold, tableware and toothpicks.

7. **Special products:** Sandalwood, lac and rubber are some special products obtained from forests.



DEFORESTATION

We now know that forests are very useful for mankind. However, some of us cut down trees in an unplanned manner due to their own selfish interests. This is neither right nor desirable.

Human beings cut forests because of the following reasons:

- ◆ Need more land to make houses, industries and for agriculture.
- ◆ Need wood for construction.
- ◆ Need some trees for specific use which they cut without planting more of them.



Such activities are leading to a drastic reduction in the forest cover on earth. The government has made laws according to which cutting down of trees is a punishable offence. When some trees need to be cut, a larger number of trees must be planted.

Harmful Effects of Deforestation

Cutting down of trees by man is very harmful. It leads to:

- ◆ Decrease in rainfall in the surrounding areas.
- ◆ Increase in the amount of carbon dioxide in the atmosphere that can increase global warming.
- ◆ Decrease in the levels of ground water in the nearby areas.
- ◆ Increase in soil erosion that can cause more frequent floods. These can result in widespread destruction.
- ◆ Destruction of habitat of a number of plants and animals.

HOW TO PROTECT FORESTS?

Throughout the world, forests are in danger. Many plants and animals, that live in these forests, are disappearing fast. Many people, and cultures, that depend on forests for their way of life, are also under threat.

Do You Know?

- ◆ Only 20% of the world's ancient forests are left.
- ◆ A forest, of the size of a football field, disappears every two seconds.

The Forest Conservation Act was enacted by the Indian Parliament in 1980. According to its rules, the indiscriminate cutting of trees, in forests, is a punishable offence.

Many areas in India have been converted into National Parks, and Wildlife Sanctuaries, to protect the forest cover and the animals that live in the forests. A **national park** is a reserved land, usually declared and owned by the national government. It is protected from most human developments and pollution. A **sanctuary** is also a reserved area in which birds and animals are protected from hunting.

A national park differs from a sanctuary in that no human activity is allowed inside the former, while limited activities are permitted within the latter. National parks receive more financial support from the Central Government. The Gir National Park in Gujarat is probably the only place in the world where the Asiatic lion is protected so that it can live in its natural surroundings.



Asiatic lion at Gir National Park

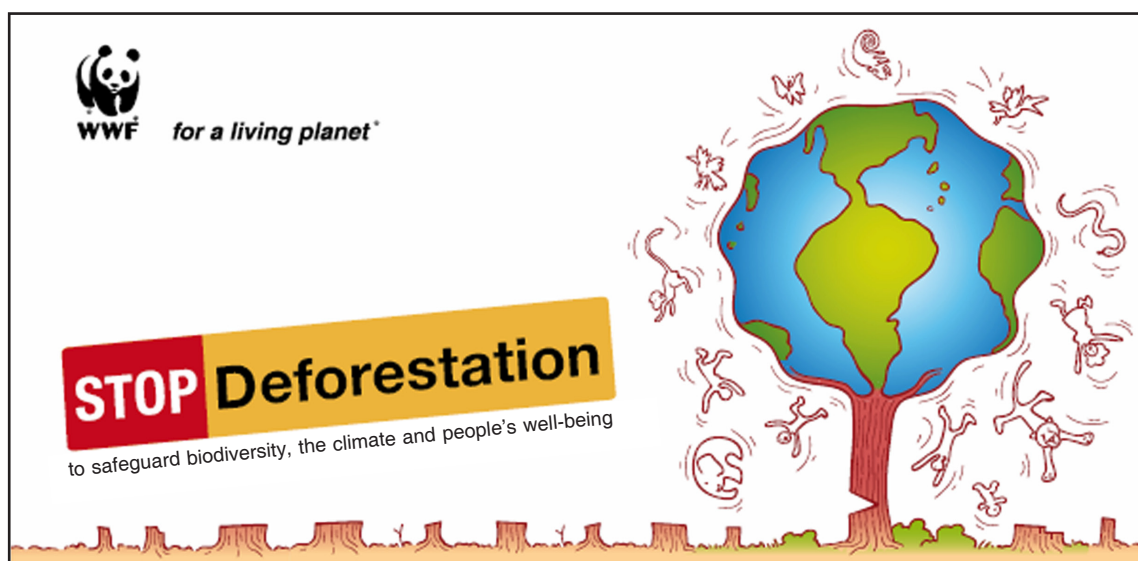


A pair of Siberian cranes at the Bharatpur Bird Sanctuary

Bharatpur Bird Sanctuary in Rajasthan is the largest bird sanctuary in Asia. It is famous as a refuge for migratory birds like Siberian cranes, barons, ibis, pelicans and painted storks. These, and many other migratory birds, make it their temporary home during very severe winter months.

Some other National Parks, in the Himalayan foothills, are the Corbett National Park and the Dudhwa National Park. These provide an unforgettable wildlife experience.

- ◆ A number of organisations are spreading awareness about the importance of forests and trees through printed as well as electronic media.



Poster issued by World Wildlife Fund

- ◆ We all can also contribute towards forest conservation:
 - (i) by minimising the use of wood and wood products.
 - (ii) by not using products that promote destruction of forests. Many people buy fur obtained from animals, ornaments made of elephant tusks, etc. This should not be done as it leads to killing of wild animals.
 - (iii) by celebrating the growing of plants as a festival and involving more and more people in this activity. This festival is celebrated in many parts of India as *Van Mahotsava*.

Do You Know?

Van Mahotsava is a programme launched by the Indian government to increase the number of trees in our country. Every year thousands of trees are planted during this forest festival. Many schools also celebrate *Van Mahotsava* by planting trees. This way, they contribute towards making the earth green.

Forests are earth's **air purifiers**. They are often referred to as the **earth's lungs**. Just as our lungs absorb carbon dioxide from the blood and infuse it with oxygen, green plants absorb carbon dioxide during photosynthesis and in return, release oxygen into the atmosphere.

Do You Know?

The well-known *Chipko Andolan* literally means 'Hug the Trees Movement'. It originated from an incident in a remote village high up in the Himalayas in 1972. There was a dispute between the local villagers and a logging contractor who had been allowed to fell trees in a forest close to the village.

Undeterred, the women of the Reni village reached the forest quickly and clasped the tree trunks. They thus, prevented the workers from using their axes and saws to cut trees.

The *Chipko Andolan* fueled worldwide attention. It is the symbolic heading of "tree huggers" who put themselves in danger, in order to protect a part of the natural environment from getting harmed.



Keywords

- ❖ **afforestation** the process of large scale planting of trees.
- ❖ **bird migration** a regular seasonal movement, along a flyway between breeding and wintering grounds, undertaken by species of many birds.
- ❖ **canoe** a light weight narrow boat.
- ❖ **deforestation** large scale cutting of trees.
- ❖ **forest** a forest is an area with high density of trees.
- ❖ **refuge** a place providing shelter and protection.
- ❖ **scaffold** a temporary structure used to support people and material during construction or repair of buildings.

Something to Know

A. Fill in the blanks.

1. Forests serve as home to many types of _____.
2. Forests absorb large amounts of _____ gas.
3. Deforestation _____ rainfall in the surrounding areas.
4. _____ is the largest bird sanctuary in Asia.
5. For early man, forests were a source of _____ and _____.

B. Match the following:

- | | |
|----------------------|--------------------------|
| 1. resins | a. cutting down of trees |
| 2. forests | b. adhesives |
| 3. deforestation | c. soil conservators |
| 4. <i>aswagandha</i> | d. paint |
| 5. gums | e. medicinal plant |

C. Tick (✓) the correct option.

1. The leaf, used to make disposable plates, is the—
 (a) *tendu* leaf (b) areca nut leaf
 (c) *amla* leaf (d) *brahmi* leaf
2. Deforestation results in—
 (a) soil erosion (b) floods
 (c) low rainfall (d) all the above
3. Bee wax is used to make—
 (a) spices (b) varnish
 (c) medicine (d) adhesive
4. Which of the following is not a forest product?
 (a) gum (b) timber (c) *aswagandha* (d) kerosene

5. If forests disappear, the amount of—
- (a) carbon dioxide, in air, will decrease.
 - (b) oxygen, in air, will increase.
 - (c) carbon dioxide, in air, will increase.
 - (d) nitrogen, in air, will increase.

D. Answer the following questions in brief.

1. Name any four products that are obtained from forests.
2. Why do some men cut trees?
3. What is the Gir National Park famous for?
4. Name two migratory birds that visit Bharatpur Bird Sanctuary.
5. What is the average temperature and annual rainfall needed for a forest to develop?

E. Answer the following questions.

1. List four harmful effects of deforestation.
2. How do forests prevent soil erosion?
3. State the importance of forests to human beings.
4. Why are forests known as the 'lungs of earth'?
5. How can we contribute towards protection of forests?

Based Question

Ridhi visited Kullu-Manali during her vacation. She glanced at shops with showpieces, household items, decorative items, key rings and jewellery boxes. She was attracted towards the gift items made of wood. She wanted to buy some such gifts for her friends. Her mother suggested that she should buy fresh fruit boxes of cherries, peaches and almonds as gifts for her friends. Ridhi agreed with her mother and did not buy items made from wood.



1. Who do you think had made the better choice of purchasing the gifts?
—Ridhi or her mother?
2. Make a list of five things, used at home or school, made from wood.
3. Suggest two ways by which every person can contribute towards forest conservation.

Something to Do

1. Visit a national park or a wildlife sanctuary and prepare a list of ten plants and ten animals that you see there. Are these plants and animals present in the area where you live? What could be the reason?
2. Given below is a poem about how human activities can be harmful to the environment. Read this poem and write down five harmful activities of humans. Suggest some ways by which we can stop and reverse the harmful effects.

“The world is finite, resources are scarce,

Things are bad and will be worse,

Coal is burned and gas exploded,

Forests cut and soil eroded,

Wells are dry and air polluted,

Dust is blowing, trees are uprooted,

Oil is going, ores depleted,

Drains receive what is excreted,

Land is sinking, seas are rising,

Man is far too enterprising,

Fires will rage with man to fan it,

Soon we will have a plundered planet.”

—K.E. Boulding

4

ANIMALS—OUR FRIENDS

Since the beginning of civilisation, animals have played an important role in the life of human beings. We have animals, like dogs, cats and parrots, as pets. Everyday, we use many products, like milk, cheese, honey, eggs and meat, as food; these are obtained from animals. Horses and oxen are used as draught animals to draw wagons and carts; they are also used to assist the farmers in their fields.



The following points further explain the usefulness of animals in our day-to-day life:

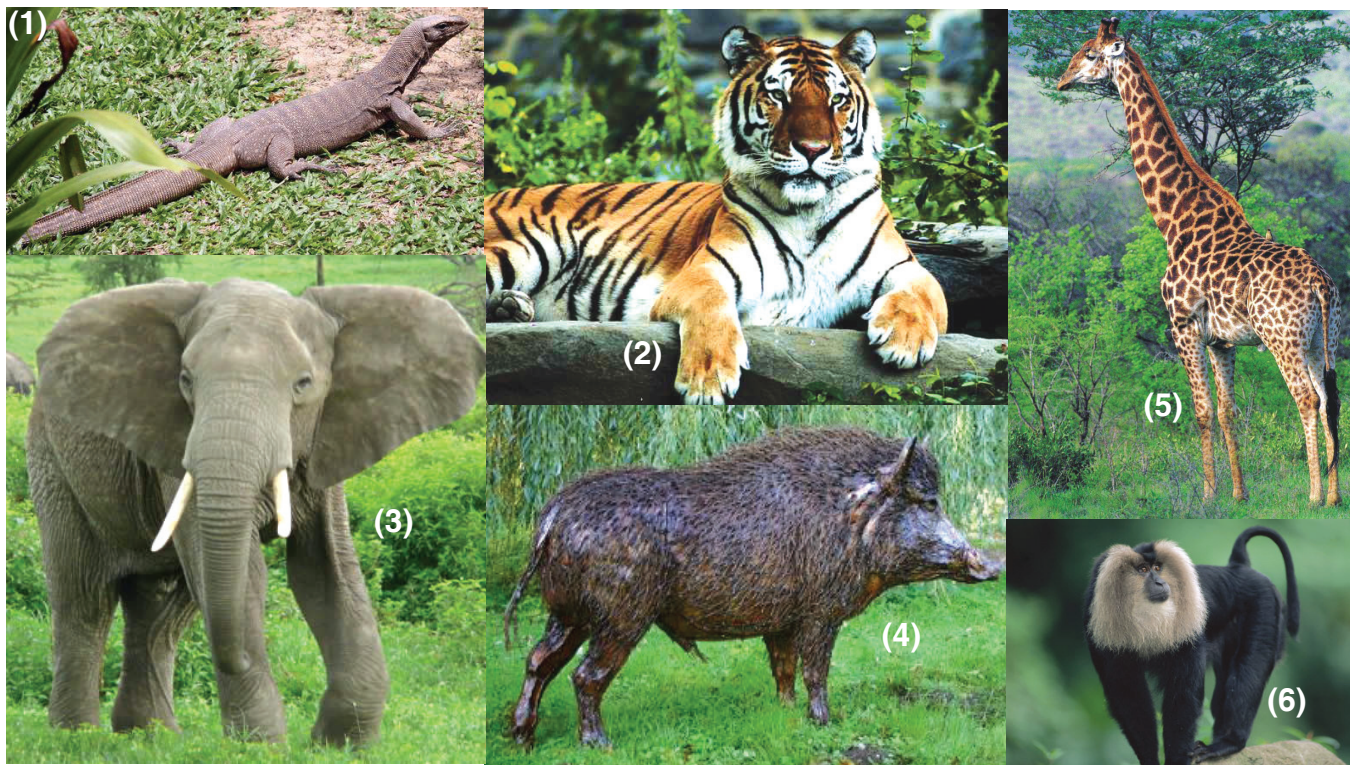
- ◆ Silk and wool, that are used for making cloth, come from silkworm and sheep respectively.
- ◆ Leather, obtained from the skin of animals like goat, sheep and buffalo, is used to make shoes, purses and bags.
- ◆ Pearls, used as jewellery, are obtained from oysters.
- ◆ Many types of fish, prawns, lobsters and crabs, are used as sea food.
- ◆ Animals like horses, camels, elephants are used as means of transport.
- ◆ In the ancient times, kings had dogs that used to assist them in hunting in the forests. At present, dogs assist police in various search operations.

- ◆ Animal waste, like cowdung, is converted to compost. Compost makes soil fertile for growth of plants.

WILDLIFE

Wildlife includes all those plants and animals that live and grow in their natural surroundings. Wildlife is found everywhere—in plains, rivers, mountains, seas, rainforests and deserts. Today, there are very few places left on the earth where wildlife is totally untouched by human beings.

Look at the pictures given below.



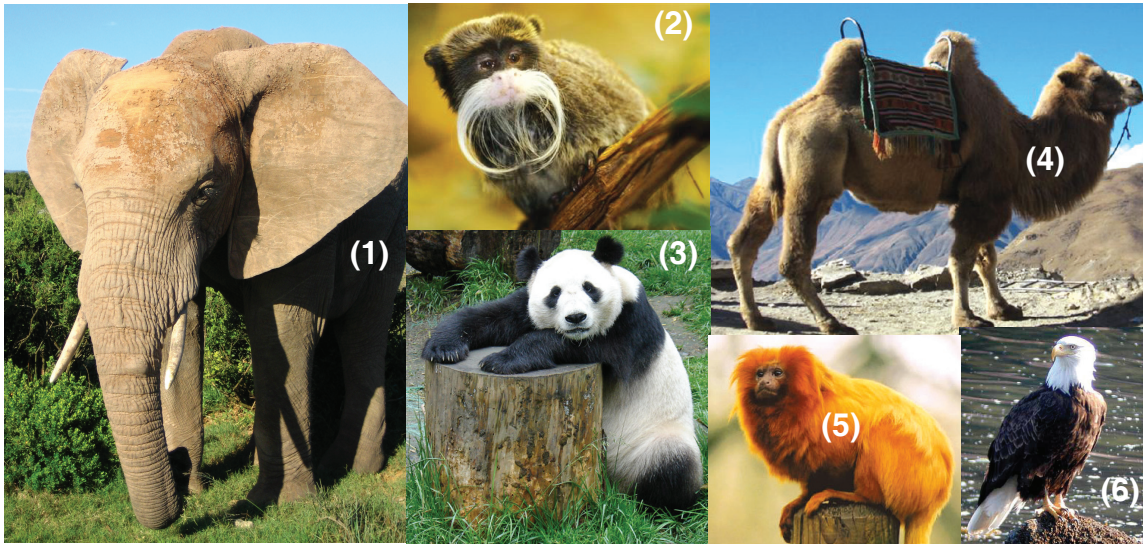
Wild animals: (1) Monitor lizard (2) Tiger (3) Elephant (4) Wild boar (5) Giraffe (6) Lion-tailed macaque

Name some more wild animals that live in forests.

Wild animals were present on the earth long before the arrival of human beings. They have as much right to live here as we do. However, we, the human beings, are destroying the natural surroundings of these animals by cutting down forests and by polluting rivers. Due to this, many wild animals are not able to live in their changed surroundings and are increasingly becoming extinct.

Extinct animals are those animal species which are no longer living. Animals like Tasmanian tiger, quagga, passenger pigeon, golden toad and caribbean monk seal, have already become extinct.

Endangered animals are those animal species that are in danger of becoming extinct. Animals, like African elephant, bactrian camel, bald eagle, golden lion, tamarin and panda, are some of the animals that face the danger of becoming extinct.



Endangered Animals: (1) African elephant (2) Tamarin (3) Panda (4) Bactrian camel (5) Golden lion (6) Bald eagle

Do You Know?

Kenya's Masai Mara, one of the world's most famous Wildlife Sanctuaries, was recently voted one of the seven wonders of the natural world. However, it is getting seriously threatened by human activities.

Dangers of Wildlife Trade

In many parts of the world, wildlife is in danger because of many illegal hunting and poaching activities. There are animals which are being killed because their body parts are used by humans. This is known as **wildlife trade**.

Let us find out which body parts of various animals are being used for trading.

- ◆ Elephants are hunted for their tusks. The tusks, or ivory (as it is commonly known), are used for making jewellery and decoration pieces.
- ◆ North and South American bears are also being killed for their gall bladders, which are then smuggled to other countries and used to make medicines.
- ◆ Rhinoceroses are being slaughtered for their horns. These, are ground into powder form, to make medicines.

- ◆ Musk deer is becoming extinct because it is being hunted to obtain *Kasturi*, an ingredient of many perfumes.
- ◆ A variety of mountain goat is hunted because its hair yield a very expensive variety of wool—*pashmina*.
- ◆ Tigers, endangered throughout their range, are killed for making use of their bones. The skins of tigers are used to decorate walls by hunters. Tiger claws and teeth are worn as jewellery by many superstitious persons who think that these can bring them good luck.
- ◆ Legs of frog are eaten as they are considered to be a 'delicacy'. About 200 million to 1 billion frog legs are consumed each year. This might lead to the extinction of many species of frog. Such a decrease, in the population of frogs, will affect many organisms and also increase the insect population.
- ◆ *Caviar*, another very costly delicacy, is made from the unfertilised eggs of a variety of fish. However, this has led to a steady decline in the number of this variety of fish.

If this type of illegal trade continues, many species may disappear from earth.

Protection of Wildlife

We hear of cases where monkeys are troubling people. They often take away things from their houses. Sometimes, we hear of leopards and tigers having become man eaters. We should realise that they are doing so because man is destroying their living areas by cutting down forests. Protection of wildlife is very important.

Government of India enacted the **Wildlife (Protection) Act, 1972** with the objective of effectively controlling poaching and illegal trade in wildlife. This has been amended in January, 2003. Punishment and penalty for offences under the Act have been made more stringent.

A very important reason for protecting wildlife is that they form an important part of many food chains. If they are killed, many other animals in that food chain get affected.

FOOD CHAIN AND FOOD WEB

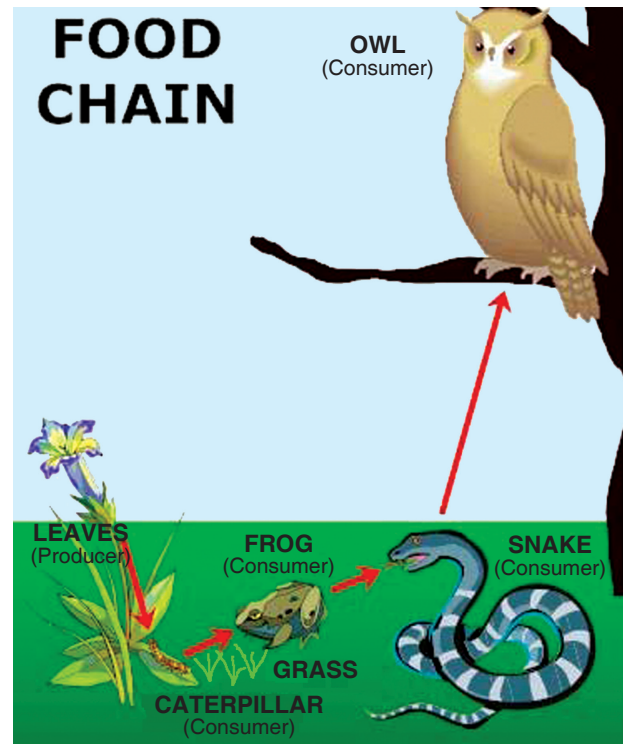
Food chain is a process of 'who eats whom'. A food chain shows how each living organism gets its food. For example, leaves (eaten by), caterpillar (eaten by), a frog

(eaten by), snake (eaten by) an owl form one food chain. If we destroy one link in a food chain, we might end up by destroying the whole food chain.

Food chains are found in all habitats, such as desert, water or plains.

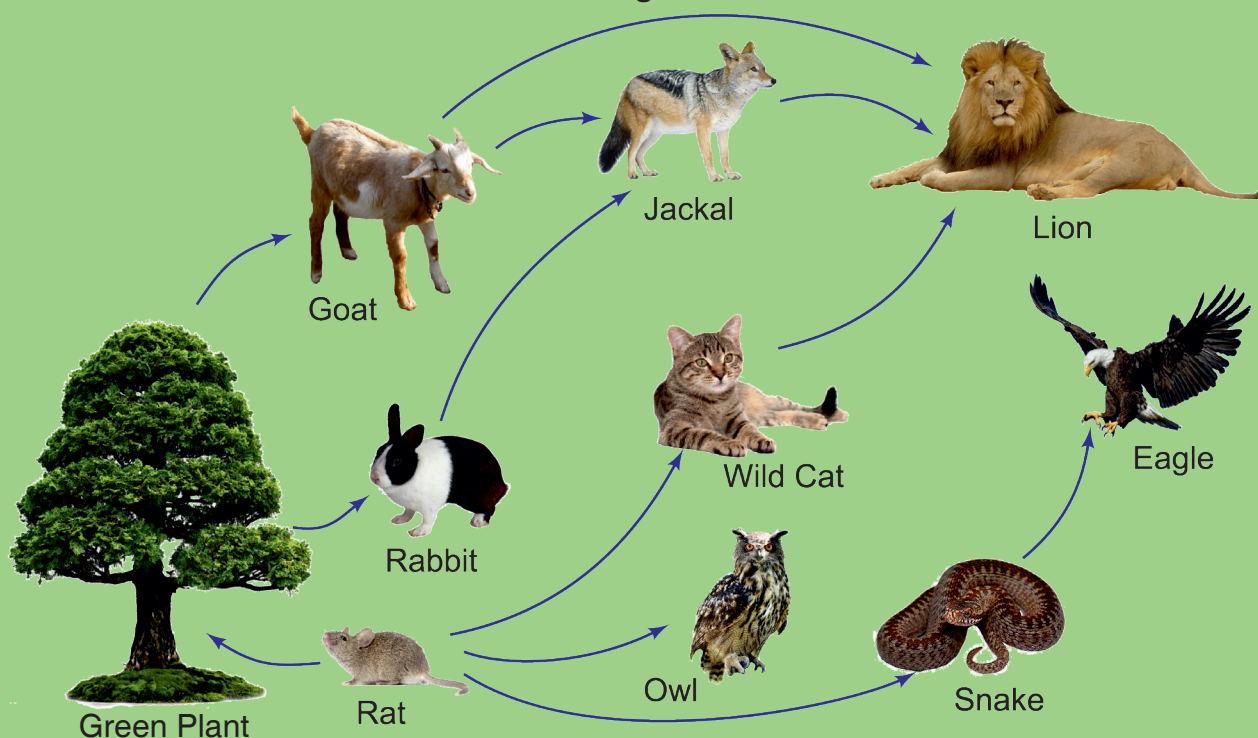
Most animals are part of more than one food chain; they also eat more than one kind of animals in order to meet their food requirements. Such interconnected food chains form a **food web**.

Food webs show how plants and animals are interconnected in many ways to help them survive in nature.



Activity:

Try to make at least five food chains from the given food web.



Care for Animals

Many animals are being affected due to the activities of man. Man is destroying a number of food chains and is thereby, disturbing the food webs. All such activities

would, in turn; affect man also. It is important for all of us to be more considerate towards animals. We should not be cruel towards them.

Here is what we can do to prevent cruelty to animals:

- ◆ Do not throw polythene bags in the garbage. Stray cattle can swallow them and they may die.
- ◆ Do not put birds in cages and fish in aquariums. They feel trapped in small spaces and their life span gets reduced.
- ◆ When visiting a forest, park or garden, one should not remove eggs of birds from their nests.
- ◆ Put some water in an earthen bowl and keep it outside, especially during summers. You will be able to see many birds coming there to quench their thirst.
- ◆ If you have pets, give them the love and good care that they deserve. If the pet animal appears to be sick, take it to the veterinarian.
- ◆ Talk to your friends about how to treat animals with kindness and respect. Be a good role model.
- ◆ Visit and support your local animal rescue organisation.

Do You Know?

People for the Ethical Treatment of Animals (PETA) is an animal rights organisation. It is the largest animal rights group in the world. PETA's slogan is "animals are not for us to eat, wear, experiment on, or use for entertainment." The organisation focuses on four core issues: factory farming, fur farming, animal testing, and animals in entertainment.



Keywords

- ❖ **draught animal** an animal used for pulling heavy loads.
- ❖ **endangered** in danger of becoming extinct.
- ❖ **extinct** when no member of a species exists any longer.
- ❖ **habitat** a place where certain kind of plant grow and animal live.
- ❖ **oyster** a type of shell fish that has a rough shell with two parts; it is eaten both cooked and raw.
- ❖ **pollute** make dirty.
- ❖ **species** a group of very similar plants or animals.
- ❖ **tusk** extra long tooth that grows outside the mouth of elephants.
- ❖ **veterinarian** doctor that looks after, heals and treats animals.

Something to Know

A. Fill in the blanks.

1. We keep _____ and _____ as pets.
2. _____ assist police in search operations.
3. *Kasturi* is an ingredient of _____ deer.
4. _____ of elephant have been used for making jewellery.
5. Extinction of frogs will increase the _____ population.
6. Food chains are found in all _____.

B. Match the following:

- | | |
|------------------|-------------------------|
| 1. crab | a. pulling cart |
| 2. oyster | b. endangered animal |
| 3. ox | c. pearl |
| 4. mountain goat | d. sea food |
| 5. bald eagle | e. <i>pashmina</i> wool |

C. Tick (✓) the correct option.

1. A delicacy made from the unfertilised eggs of a variety of fish is the—
 (a) *kasturi* (b) caviar (c) *pashmina* (d) tusk
2. Which of these animals is extinct?
 (a) bactrian camel (b) golden lion (c) quagga (d) panda
3. The body part of rhinoceros, for which it is often hunted by humans, is—
 (a) bones (b) horns (c) legs (d) skin
4. Humans are destroying habitat of animals by—
 (a) planting trees (b) reducing water pollution
 (c) controlling wildlife trade (d) cutting down trees

5. Which of the following food chain is correct?

- (a) leaves → frog → snake
- (b) grains → hen → man
- (c) acorn → rat → eagle
- (d) plant → jackal → lion

D. Answer the following questions in brief.

1. Name five wild animals.
2. Give the meaning of the term food chain.
3. How are human beings destroying the natural surroundings of wild animals?
4. Name the animals that can become man eaters.
5. Which Act has been passed by the Indian government to protect wildlife?

E. Answer the following questions.

1. State any five ways in which animals are useful to us.
2. Differentiate between extinct and endangered animals. Give two examples of each type.
3. What is wildlife trade? Why is it harmful?
4. Suggest any four steps to prevent cruelty to animals.
5. Some wild animals are hunted because their body is considered useful by man. Give four examples of such wild animals. Also mention the part of the body which is used in each case.

Based Question

Aadya, a student of Class-V, had a senior lady, madam Mehani, as her new neighbour. She had a young puppy as her pet. Aadya noticed that Rashi, her helping hand, would take care of the puppy. She would take it for a walk in the morning and again in the evening. She would feed it proper puppy food at regular intervals. Aadya soon became friends with both the puppy and Rashi. She would also help the senior lady to the extent she could.

After some days Rashi had to go on leave as she was urgently needed at her home. Madam Mehani became a little panicky as she was not strong enough to take the puppy for its walks. Aadya, however, assured her that she would do the needful and help her to the best possible extent. She requested her mother to take care of the puppy in the morning as she had to go to her school. Her mother appreciated her helpful nature, and her concern and empathy for others. The mother and daughter helped Madam Mehani till Rashi came back. Both madam Mehani and Rashi thanked Aadya and her mother for all the help and care they provided. The puppy also seemed to be thanking them as it wagged its tail and played with Aadya.



1. State the values, displayed by Aadya that you would also like to have.
2. Have you ever had a chance to help a senior citizen? Share your experiences with your classmates.
3. Do you think that a pet is likely to be a good companion for a single senior citizen?

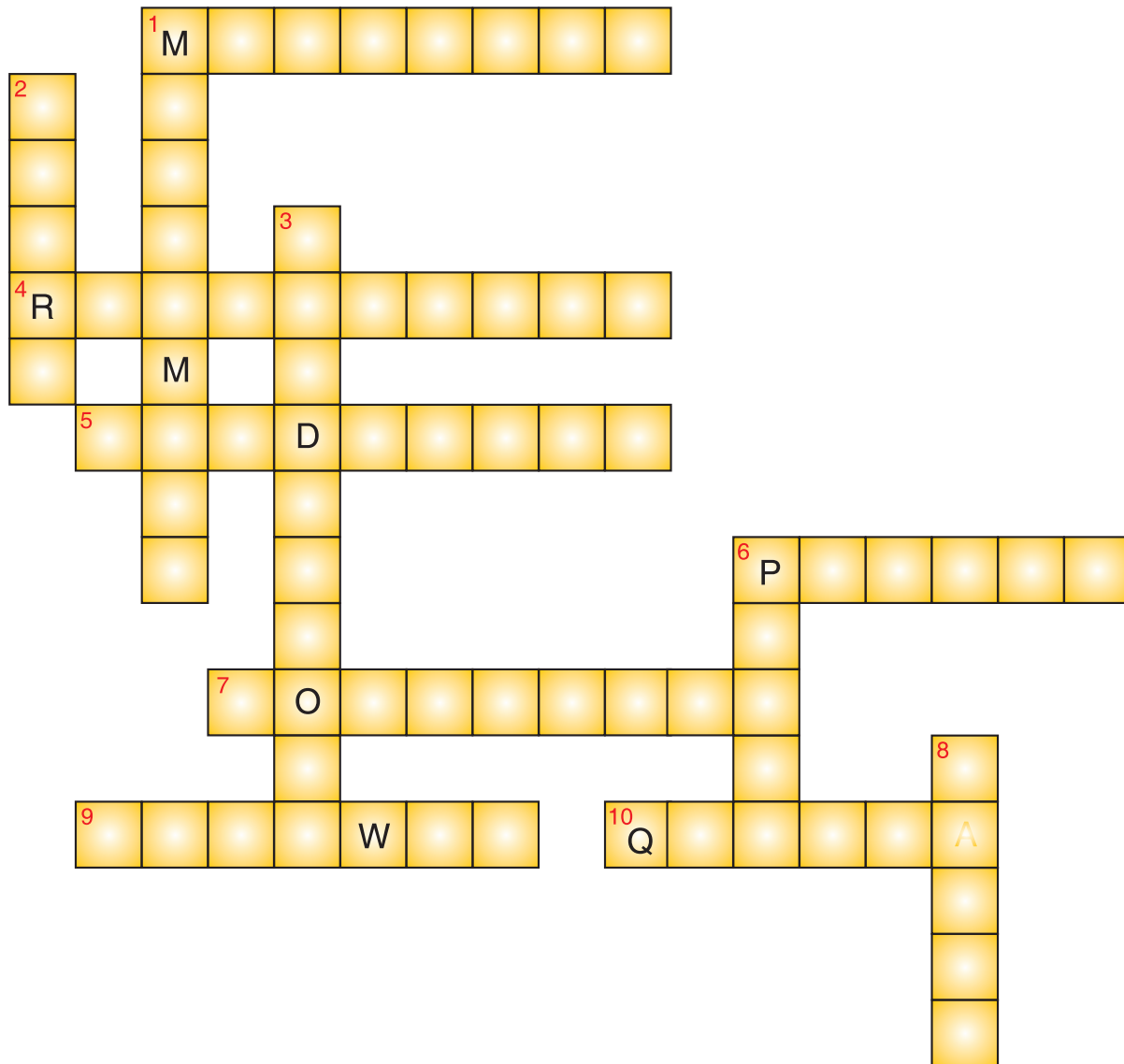
Something to Do

1. Complete the following food chains. The first one is done for you.
 1. Plant → Insect → Sparrow
 2. Grass → _____ → Lion
 3. Plant → Grasshopper → _____ → Snake

4. Producer → _____ → Carnivore

5. Grains → Mouse → _____

2. Solve the following crossword puzzle with the help of given clues.



Across →

- 1 Hunted for *Kasturi*.
- 4 Slaughtered for horn.
- 5 Rules the sky but still in danger of becoming extinct.
- 6 Green bird, my pet.
- 7 Who eats whom.
- 9 Interconnected food chains form a _____
- 10 I was there once upon a time...

Down ↓

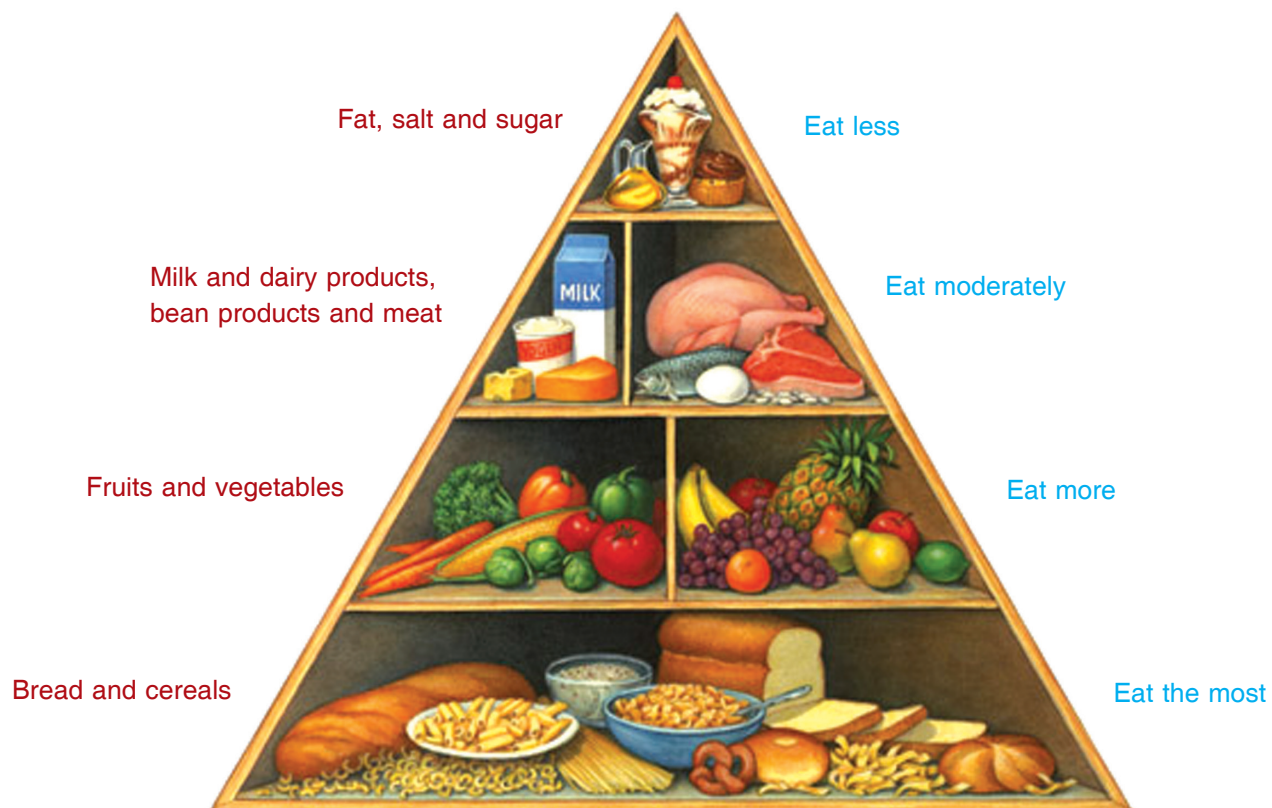
- 1 Voted as one of the seven wonders of the world.
- 2 Open an oyster and you may find me.
- 3 A relative of frog, I am now extinct.
- 6 I eat bamboo leaves to grow, am in logo of WWF
- 8 Desert is my home.

5

FOOD AND HEALTH

All living organisms need food. Food helps us to grow and stay healthy. It also gives us energy to do work. We eat different kinds of food. This not only suits our tastes but also provides us with different types of nutrients. **Nutrients** are substances present in food that are required for proper growth and development of our body. Carbohydrates, proteins, fats, vitamins and minerals are the main nutrients that may be present in different food stuffs.

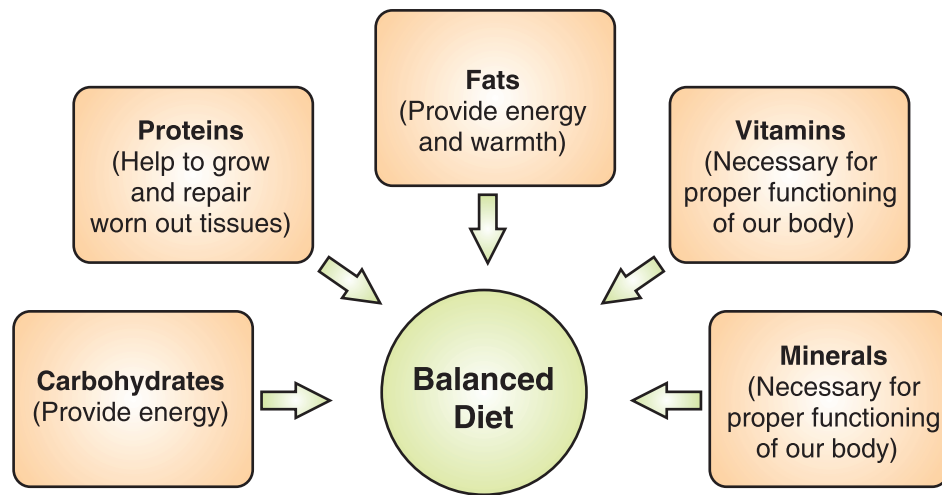
Observe the **Healthy Eating Pyramid** given below. It shows the proportion of food stuffs and nutrients that we should eat for making our food balanced and good for our health.



Healthy Eating Pyramid

For the Teacher: Teacher will explain the Healthy Eating Pyramid to the students and discuss the role of different food items in providing nutrients to our body.

We already know that there are different types of foods, i.e. energy giving, body building and protective foods. They should be taken in appropriate amounts so that our diet is balanced.



Nutrients in a Balanced Diet

HEALTH

Health is a state of complete physical and mental well being. For maintaining good health, our body needs:

- ◆ a balanced diet
- ◆ regular exercise
- ◆ proper rest
- ◆ good personal hygiene
- ◆ clean and hygienic surroundings.

If we do not fulfill these different needs of our body, we may fall ill and get diseases.

DISEASES

A **disease** is any defect, or abnormality, found in the body. Diseases may be caused due to malfunctioning of some body part or due to lack of particular vitamins or minerals in the body. Diseases are classified into two main categories:

1. Non-Communicable diseases
2. Communicable diseases

Non-Communicable Diseases

Diseases, which generally do not get transmitted from one person to another are, called **non-communicable diseases**. While some of these diseases may be present at birth, a number of them are caused due to deficiency of some particular nutrient, such as proteins, carbohydrates, vitamins or minerals in our diet. Diseases, that are caused due to some deficiency in our diet, are known as **deficiency diseases**.

Let us now learn more about deficiency diseases.

(a) Protein-Carbohydrate deficiency disease: Protein is a body building nutrient and carbohydrate is an energy giving nutrient in our body.



(i) A healthy child



(ii) A weak child

Look carefully at the pictures given above:

The child shown in picture (i) looks healthy and active while the child in picture (ii) looks weak and sick. The child shown in picture (ii) is suffering from lack of proteins and carbohydrates in his diet.

The following table lists the main symptoms of protein-carbohydrate deficiency disease:

| Nutrients deficient in diet | Symptoms |
|-----------------------------|--|
| Proteins and Carbohydrates | <ul style="list-style-type: none"> • Improper growth of the body • Loose skin and sunken eyes • Thin and light hair • Person is inactive and gets tired easily |

Children, in the age group of 6 months to 3 years, often suffer from this type of deficiency disease if they do not get a proper balanced diet.

(b) Mineral deficiency diseases: Minerals, like calcium, phosphorus, iron, iodine and sodium, are present in our body in small amounts. Deficiency of different minerals in our body leads to improper functioning of different parts of the body.

Study the following table and find out the diseases and their symptoms caused by the deficiency of different minerals:

| Minerals | Deficiency Diseases | Symptoms |
|------------------------|--|---|
| Iron | Anaemia (Less haemoglobin content in blood) | A person— <ul style="list-style-type: none"> • Looks weak and pale • Gets tired very easily • Is prone to different infections |
| Calcium/ Phosphorus | | <ul style="list-style-type: none"> • Weak teeth lose their shine and whiteness • Weak, soft and fragile bones |
| Iodine | Goitre (Enlargement of glands in neck) | A person shows— <ul style="list-style-type: none"> • Swelling in the neck region • Retarded growth • Mental disorder |



Goitre

Do You Know?

Haemoglobin is a pigment found in blood which transports oxygen and provides red colour to blood.

For the Teacher: Discuss the different types of food sources, that need to be included in the diet, to prevent each deficiency disease.

(c) **Vitamin deficiency:** In Class-IV, we have already learnt about the types of vitamins, their functions and sources.

Let us study the table, given below, to find out the diseases caused by the lack of different vitamins.

| Vitamins | Deficiency Diseases | Symptoms |
|----------|---------------------|--|
| A | Night blindness | <ul style="list-style-type: none"> • Unable to see in dim light • Dullness in eyes • Dry and scaly skin |
| B | Beri-Beri | <ul style="list-style-type: none"> • Extreme weakness • Paralysis of body parts |
| C | Scurvy | <ul style="list-style-type: none"> • Swollen and bleeding gums • Loose teeth • Pain in joints |
| D | Rickets | <ul style="list-style-type: none"> • Soft and weak bones • Bow-shaped legs |



Scurvy



Rickets

Do You Know?

In 1910, an American scientist found that the outer layer of rice kernel contains a substance called **Thiamin**. This is needed by the body to prevent a disease called **Beri-Beri**. This substance, also called **Vitamin B₁**, was the first vitamin to be discovered.

Prevention of Deficiency Diseases

The deficiency diseases can be prevented by adopting the following measures:

1. One should take a balanced diet containing all types of nutrients.
2. One must follow good food practices and habits.
3. Children must be given adequate amount of milk, milk products, and additional food items like juices, soft-boiled rice, porridge, etc.

Do You Know?

Malnutrition is a term used for a condition caused by improper or inadequate nourishment. It often results in one or more of the deficiency diseases.

Communicable Diseases

The diseases, which generally get transmitted from one person to another, are called **communicable diseases**. These diseases are transmitted either through germs, like bacteria, virus, fungi or non-living or living agents. The germs enter the body of a person through the nose or mouth or through the food and water taken by her/him.

Ways by which communicable diseases spread

1. By insects:

Diseases, like malaria and dengue, are spread by bite of mosquitoes. Plague is spread by fleas.

2. By air, water and soil:

Air, water and soil are non-living agents which can transmit diseases. The germs of the disease enter air, water or soil through coughing, sneezing, etc., by an infected person. They can then enter the body of another person. Germs of common cold, measles and chickenpox spread through air while germs of diseases, like cholera, typhoid, jaundice, spread through water.

Prevention of Communicable Diseases

Communicable diseases can be prevented by observing the following precautions:

1. All the articles and clothes of infected person should be disinfected.
2. One must always cover the nose or mouth while sneezing or coughing.
3. The surroundings must be kept clean and hygienic.

4. Water must not be allowed to stagnate around homes; stagnant water is the breeding place of mosquitoes.
5. It is important to keep on changing the water in room coolers, flower pots and other containers after every 3-4 days. If not changed, such water can become the breeding place of dengue mosquitoes.
6. Vaccination must be done to prevent many diseases like measles, polio and chicken pox.

Keywords

- ❖ **communicable diseases** diseases that can be transmitted from one person to another.
- ❖ **deficiency disease** disease caused due to lack of, or deficiency of, any nutrient in diet.
- ❖ **disease** a defect or abnormality found in the body.
- ❖ **non-communicable disease** diseases that cannot be transmitted from one person to another.
- ❖ **symptoms** signs that indicate a disease.

Something to Know

A. Fill in the blanks.

1. A _____ is any defect or abnormality found in the body.
2. Children, in the age group of _____ years, often, suffer from protein-carbohydrate deficiency disease.
3. Minerals are present in _____ amounts in our body.
4. The disease, that causes enlargement of glands in the neck, is known as _____.
5. The diseases, that get spread through insects, air, water and soil, are known as _____ diseases.

B. Match the following:

- | | |
|--------------------|--------------|
| 1. anaemia | a. vitamin C |
| 2. night blindness | b. iodine |
| 3. scurvy | c. vitamin B |
| 4. goitre | d. iron |
| 5. beri-beri | e. vitamin A |

C. Tick (✓) the correct option.

1. Haemoglobin content becomes less when a person is suffering from—
 (a) goitre (b) rickets (c) anaemia (d) beri-beri
2. A person having swollen and bleeding gums, might be suffering from—
 (a) rickets (b) scurvy (c) beri-beri (d) anaemia
3. Germs of common cold spread through—
 (a) air (b) water (c) soil (d) mosquitoes
4. Deficiency of proteins and carbohydrates, in the diet of a small child, can lead to—
 (a) weak bones (b) improper growth of body
 (c) bleeding gums (d) bow shaped legs

5. Legs become bow shaped due to deficiency of—

- (a) vitamin A (b) vitamin B (c) vitamin C (d) vitamin D

D. Answer the following questions in brief.

1. State the two main categories of diseases.
2. Write two symptoms of the disease 'Beri-Beri'.
3. Name any two diseases that are spread through the bite of mosquitoes.
4. A girl finds it difficult to see in dimlight and has dry and scaly skin. Name the disease she might be suffering from.
5. Why should we not allow water to stagnate around our homes?

E. Answer the following questions.

1. How does calcium-phosphorus deficiency affect our body?
2. Suggest some measures that can help us to prevent the occurrence of deficiency diseases.
3. How can we prevent the spread of germs from a sick person to a healthy person?
4. Isha was suffering from chicken pox. Her teacher advised her not to come to school till she has recovered completely. Why?
5. Why are deficiency diseases called non-communicable diseases?

Based Question

Rajat had to go through a slum area while on his way to school. He noticed that some slum children looked weak and pale and were quite inactive. He did not see them playing or running around like other children of their age. He discussed this problem with his Science teacher.

His teacher, along with the help of school doctor, organised a medial camp for the slum children. Rajat and his friends presented a '*nukkad natika*' (street play) to highlight how some not very costly food items can help those children to improve their health.



1. Why did the slum children look weak and pale?
2. How did Rajat and his teacher help the slum children? Discuss.
3. Suggest the names of some food items that are not too costly but are good for our health.

Something to Do

1. Prepare flash cards of four different colours, say red, green, blue and yellow. Write names of deficiency diseases on red cards (one disease on one card), symptoms on green card, nutrient missing on blue cards and food sources, to prevent their occurrence, on yellow cards. Now shuffle the cards and ask your friends to match the other coloured cards to each of the red cards.
2. Prepare a small skit on 'How to Stay Healthy?' and present it in the class/ school assembly. You can also go to a nearby slum and educate the slum dwellers through your skit.