

Sources of Food



Learning Objectives

- Functions of Food
- Sources of Food
- Food Habits of Animals
- Cooking of Food
- Food Habits of People of Different Regions of India

Introduction

You should have noticed that the day you miss your breakfast or lunch, you feel tired and exhausted. It seems, as if you lack energy to remain active. All living things—plants, animals including human beings need energy to live and grow. Food provides us this energy. Thus, food acts as a fuel for all living organisms and helps them to perform various day-to-day activities efficiently. Let us know more about food.

1.1 FUNCTIONS OF FOOD

The main functions of food are as follows:

- It provides us energy to perform various life activities.
- Nutrition required for growth and reproduction are provided by food.
- It helps to repair damaged cells and replace dead cells in the body.
- It keeps us healthy and enables us to fight against diseases.



Fig 1.1 : Food gives us energy

Evaluate Yourself

Answer the following questions:

1. A food item that is rich in carbohydrate.
2. A food item (liquid) that cleans our body.
3. A food item that provides us protein.
4. A food item that does not require cooking.
5. A food item that acts as an antiseptic.

1.2 SOURCES OF FOOD

The two main sources from where we get our food are:

- (i) Plants (ii) Animals

Food from Plants

Plants constitute an important source of our food. We already know that everything that we eat comes directly from plants or from animals that derive energy from plants.

Green plants contain a pigment called **chlorophyll** in their leaves. These leaves

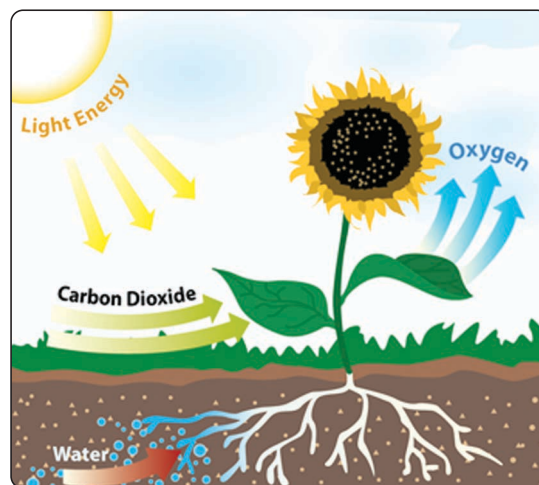


Fig 1.2 : Photosynthesis

prepare food in the presence of sunlight, air and water. This process is known as photosynthesis. Plants provide us vegetables, fruits, cereals, pulses, sugar, oils and spices.

Vegetables: Some common vegetables are potato, onion, radish, carrot, spinach, tomato, fenugreek (methi), cauliflower, brinjal, etc. These are rich source of vitamins and minerals. Vegetables are also rich in water and roughage.

Vegetables	Parts of Plants
Spinach, cabbage and coriander	Leaves
Potato and onion	Stems
Radish, turnip and carrot	Roots
Cauliflower and broccoli	Flowers

Fruits: Some common fruits are mango, banana, apple, grapes, orange, litchi, etc. These are also rich sources of vitamins and minerals and also have high water content and roughage.



Mangoes

Other fruits

Fig 1.3 : Fruit Varieties

Cereals: Cereals are most important source of food provided by plants. Wheat, rice, maize and bajra are the main cereals. They are rich sources of carbohydrates. They provide us energy.



Wheat

Rice



Maize

Bajra

Fig 1.4 : Cereals

Pulses: Pulses are also provided by plants. Peas, gram, bean, rajma, etc. are the common pulses. They are rich sources of proteins. They help in the growth of the body.



Arhar

Moong



Urad

Masoor

Fig 1.5 : Pulses



Moong daal has two cotyledons. That is why it is called Dicot Seed.

Oils: We obtain oil from the seeds of some plants. These include mustard, groundnut, soyabean, sunflower, etc. Oil is used for cooking food.

Spices: Different parts of some plants are used as spices. Ginger (**adrak**), coriander (**dhaniya**), fennel (**saunf**), thyme (**ajwain**), cumin (**jeera**), fenugreek (**methi**), nutmeg (**jaiphal**) are commonly used spices. They provide flavour to the food.

Sugar: Sugarcane and sugar beet provide us sugar. Sugarcane is a stem, while sugar beet is a root. Sugar provides us energy to do work.

Activity 1

Observe three plants– tomato plant, banana plant and brinjal plant– and write down their edible and non-edible parts in the following table.

Plants	Edible Part	Non-edible Part
Tomato plant		
Banana plant		
Brinjal plant		

Food from Animals

Animals also provide us food in the form of milk, meat, eggs, fish and honey.

Milk: Milk is considered as a complete food. It usually contains all the nutrients required for our growth. We must drink milk everyday. Cows, buffaloes and goats are the main milch animals. Buffalo's milk is rich in fat. Various milk products



Cows



Buffalo

Fig 1.6 : Milch animals

are prepared from milk. Cow and goat milk contains less fat, and therefore, it is good for infants, old and sick people.

Meat: Meat is a rich source of proteins. Goat, sheep, hen and duck are common animals used for obtaining meat.



Goat



Hen

Fig 1.7 : Common meat sources

Eggs: Birds which provide both meat and eggs are called poultry. Chicken, fowl and ducks are considered as poultry animals. They provide meat and eggs. Eggs are rich in proteins.



Fig 1.8 : Poultry farm

Fish: Fish is also a major source of food. It is rich in proteins and is easily digestible. Some fish like cod and shark provide oil, which is rich in vitamin D. Freshwater fish varieties that are edible include **catla, labeo, rohu**, etc. Tuna and cod are examples of marine fish. Rearing of fish on a large scale is known as **pisciculture**.



Fig 1.9 : Fish

Besides fish, oysters, mussels, shrimps, prawns and lobsters are also major sources of seafood.

Do You Know?

In some parts of world, insects are also eaten because they are rich in proteins.

Food from Insects

Some insects are very useful to us. Honeybees suck nectar from flowers. They store this nectar in their hives in the form of honey. Rearing of honeybees on a large scale is known as **apiculture**. Water, sugar, minerals and enzymes are the main constituents of honey. It is often used in medicines to cure cough.



Fig 1.10 : Honeybees

Evaluate Yourself

Answer the following questions:

1. An animal that provides us meat.
2. A bird that provides us eggs.
3. An insect that collects food and stores it (we also consume it).
4. A person who does not eat meat, eggs and milk products.
5. A fish variety that is widely eaten in India.

1.3 FOOD HABITS OF ANIMALS

Animals cannot prepare their own food. They are **heterotrophs**, meaning, they directly or



Activity 2

Write the names of food items eaten by the following animals. You may include other animals also in the same format.

S. No.	Name of Organism	Types of Food Eaten
1.	Human beings	Vegetables, fruits, meat, pulses, milk, egg, cereals
2.	Fish	Small aquatic plants/animals
3.	Cat	Rat, other small animals, milk, bread, small birds like hen
4.	Cow	_____
5.	Tiger	_____
6.	Lion	_____
7.	Elephant	_____

indirectly depend on plants for food. Different animals consume different kinds of food. Their body parts are adapted to the kind of food they eat. On the basis of their feeding habits, animals are classified into following groups:

Herbivores: Animals that eat only plants or plant products are called herbivores. Buffaloes, cows, goats and horses are called herbivorous animals. In the front, they have sharp cutting/biting teeth, while at the back, they have flat grinding teeth.



Fig 1.11 : Horse : A Herbivore

Carnivores: Animals that eat the flesh of other animals are called **carnivores**. Lions, tigers, wolves,



Fig 1.12 : Lion : A Carnivore

snakes, eagles and vultures are carnivores. These animals have long and sharp teeth or beaks to tear the flesh. Snakes have small teeth, which are used for swallowing the prey as a whole.

Do You Know?

A lion cannot survive by eating grass. The basic reason behind this fact is that the lion's digestive mechanism is not fit for digesting vegetation. It is a true carnivore!

Omnivores: Animals that eat both plants and animals are called omnivores. Human beings are



Fig 1.13 : Omnivore

omnivores. Bears, dogs, crows and cockroaches are also omnivores. Some carnivores and omnivores are also known as *scavengers*. They consume dead bodies of animals and help to keep the environment clean. Some examples of scavengers are crows, jackals, and vultures.

Parasites: Small animals that depend on other living animals for their food are called parasites. Mosquitoes survive on blood that they suck from human beings and other animals. They have a long,

sharp pipe-like organ instead of teeth, which pierces the skin and sucks the blood. Fleas, leeches and bugs are common parasites. Some parasites such as tapeworm, roundworm and hookworm live inside the bodies of animals and consume the leftover food after it has been digested by the animals.

Activity 3

Complete the following table based on food habits of animals.

Animal	Food they eat	Classification on the basis of food habits
Cow		
Bug		
Crow		
Snake		
Bear		
Vulture		

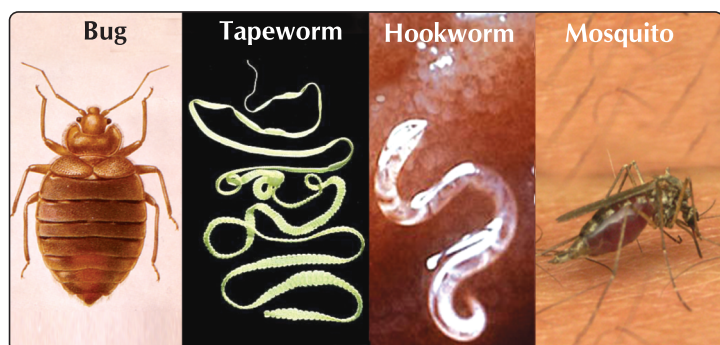


Fig 1.14 : Parasites

Do You Know?

- Swallowing of one teaspoon dry sugar can cure hiccups.
- Red chillies have amazing health benefits for the human body. They contain a chemical compound called capsaicin, which has anti-bacterial, anti-diabetic and analgesic properties. They are also rich in vitamins A, B and C.

Evaluate Yourself

Answer the following questions:

- A herbivore that is used to play sports.
- An omnivore that eats salmon.
- A carnivore that lives in prides.
- An omnivore that does not eat food without cooking it.
- An animal that eats dead bodies of other animals.

1.4 COOKING OF FOOD

We cook most of our food items before consuming them. We cannot eat grains, cereals, meat, and other food items without cooking. Only edible fruits such as apple, banana, orange, pear, guava, etc. are eaten raw. In the case of cereals, pulses, vegetables, etc. the food is steamed, boiled, or roasted first, before we consume them. Cooking of food has the following advantages.

- It makes food edible.
- It makes food items soft and easily digestible.
- It makes food tastier.
- It kills the harmful germs present in raw food.

Cooking of food makes it easy to digest, but overcooking reduces the nutritional value of the food. The vitamins and minerals of the food are spoiled or lost, when the food is overcooked. Hence, overcooking of food should be avoided.



Fig 1.15 : A food platter

Do You Know?

Cooking makes food items soft, safe and easily digestible. It enhances the flavour of food too. It also kills harmful bacteria that are present in raw food.

Evaluate Yourself

Answer the following questions:

- A vegetable that can be eaten raw.
- A junk food item that you should not eat.
- A food grain that is grinded to make flour.
- An electronic device for cooking food.
- An electronic device for storing food.

1.5 FOOD HABITS OF PEOPLE OF DIFFERENT REGIONS OF INDIA

Food habits of people are based on the availability of food and their preferences. Although there is considerable regional variation in Indian cuisine, the day-to-day diet of most Indians lacks proper nutritional value. People of India generally eat two to three meals in a day.

Eastern Regions: In Bihar, West Bengal, Odisha and Assam, people mainly consume rice and fish. This region has many rivers and parts of West Bengal and Odisha are surrounded by the Bay of Bengal. So, a lot of fish and seafood are available.

Western Regions: Gujarat, Maharashtra and Goa obtain a lot of fish from sea and rivers and rice is the main crop grown there because of abundant rainfall. They also eat to have dhokla, pulses and groundnuts.

Northern Regions: People of Punjab, Rajasthan, Haryana and Himachal Pradesh eat chapati, parathas, pulses and they drink lassi. Wheat is produced in bulk in these region.

Southern Regions: Food of people of these areas includes sea animals, fish and rice. People also eat idli, dosa, sambhar and other preparations made from rice, banana chips and coconut. They use coconut oil as a medium of cooking.

Evaluate Yourself

Answer the following questions:

1. The state with the highest wheat production.
2. The staple food of the people of West Bengal.
3. The state famous for lassi.
4. The state famous for dhokla.
5. The state famous for uttapam.



Activity 4

Fill in the blanks with suitable words to describe the food generally consumed by the people of the following states.

- | | | | |
|----------------|-----------|-----------|-----------|
| 1. Punjab: | (a) _____ | (b) _____ | (c) _____ |
| 2. Goa: | (a) _____ | (b) _____ | (c) _____ |
| 3. Assam: | (a) _____ | (b) _____ | (c) _____ |
| 4. Tamil Nadu: | (a) _____ | (b) _____ | (c) _____ |



Points to Remember

- ◆ All living things need energy to live and grow.
- ◆ Living things obtain energy from food.
- ◆ We get food from both, plants and animals.
- ◆ The food we obtain from plants includes vegetables, fruits, cereals, pulses, sugar, oils and spices.
- ◆ Fruits and vegetables are rich sources of vitamins and minerals.
- ◆ Cereals like wheat, rice, maize and bajra are rich sources of carbohydrates.
- ◆ Pulses are seeds of some plants, and they are rich source of proteins.
- ◆ We obtain sugar from sugarcane and sugar beet.
- ◆ We also obtain food from animals in the form of milk, meat, eggs and honey.
- ◆ Rearing of honeybees on a large scale is called apiculture.
- ◆ Animals that eat plants or plant products are called herbivores.
- ◆ Animals that eat both plants and animals are called omnivores.
- ◆ We cook most of our food items before consumption.

Key Terms

Organisms: All living things — plants, animals, bacteria, fungi, human beings, etc.

Chlorophyll: Green pigment present in green plants which traps sunlight

Food: A substance eaten by an organism to obtain energy for its life processes

Poultry: Domesticated birds which provide eggs and meat

Heterotrophs: Animals that cannot prepare their own food

Herbivores: Animals that eat plants or plant products

Carnivores: Animals that eat the flesh of other animals

Parasites: Small animals that depend on other animals

EXERCISES

A. Tick (✓) the correct option:

- Food:
 - helps us to grow
 - provides us energy
 - both (a) and (b)
- Which part of the potato plant is consumed?
 - root
 - stem
 - seed
- Which of the following is not obtained from plants?
 - eggs
 - bread
 - fruits
- Bajra is a:
 - spice
 - pulse
 - cereal
- Green plants contain a pigment called:
 - chlorophyll
 - stomata
 - parasite
- Apiculture implies the rearing of:
 - fish
 - bees
 - silkworms
- An example of a herbivore is:
 - snake
 - zebra
 - mosquito

- The _____ of potato and onion are eaten as food.
 - flowers
 - leaves
 - stems
- Domesticated birds that provide eggs and meat are called:
 - carnivores
 - herbivores
 - poultry
- In the southern region, the common cooking medium is:
 - ghee
 - coconut oil
 - none of these

B. Fill in the blanks:

- The main sources of our food are _____ and _____.
- Cumin and ginger are _____.
- We obtain sugar from _____.
- _____ is considered as complete food. _____ product.
- Animals that eat only plants are called _____.

C. State True or False:

- All green plants make their food in roots.
- Plants are the only source of food for us.
- Cereals are rich sources of carbohydrates.
- Honey is produced by housefly.
- Dogs, snakes and vultures are carnivores.

D. Complete the following table:

S.No.	Food items	Part of the plant eaten
1.	Potato	_____
2.	Cauliflower	_____

3. Spinach _____
4. Cereals _____
5. Radish _____

E. Very short answer type questions:

1. Give an example of a food item that is rich in Vitamin C.
2. Give an example of an animal that sucks the blood of humans and animals.
3. What is apiculture?
4. Give two examples of heterotrophs.

F. Short answer type questions:

1. What are the main benefits of eating food?
2. What are the edible and non-edible parts of a plant?
3. Name the different categories of food.
4. State the edible parts in the following:
 - (i) Sugarcane
 - (ii) Orange
 - (iii) Cabbage
 - (iv) Wheat
5. Give two examples of each of the following:
 - (i) Herbivores _____
 - (ii) Carnivores _____
 - (iii) Omnivores _____
 - (iv) Parasites _____

G. Long answer type questions:

1. What are the different sources of food for human beings? Explain in brief with reference to plants as a main source of food.
2. Describe the animal products used as food by human beings.
3. Write the advantages of cooking food.
4. Throw light on the food habits of people of different regions of India.
5. Differentiate between herbivores and carnivores. Also give suitable examples.

HOTS

Critical Thinking,
Social and Emotional Learning

Suppose you are the manager of a hotel, and you are particular about serving healthy food to the customers. What measures would you take so that food is not wasted?

Task

Critical Thinking

Plants and animals are the main sources of food. Write the name of food item which is not obtained from plants and animals.

Class Discussion

Collaboration,
Social and Emotional Learning

Divide the class into small groups and discuss the importance of animals in our daily life.

Group Activity

Collaboration,
Vocational Integration

Work in small groups and collect the pictures of different plant and animal products used as food from magazines and newspapers. Classify them into plant and animal products. Make a collage titled 'Sources of Food'.

Find Out

Inquiry-based Learning,
Critical Thinking

Why do lions and tigers not feed on plants or plant products?

Try to Do

Experiential Learning

Useful Kitchen Garden

We can grow fresh vegetables in our kitchen garden. To make a kitchen garden, ask the elders of your family to help you make a small garden in which you can grow vegetables. You can use wastes like vegetables peels, waste food, dried leaves of plants, etc. to prepare manure for plants. Water the plants regularly, and when the vegetables are fully grown, harvest them and enjoy eating them.

Now look at Veenu's kitchen garden and identify the vegetables which she likes to grow and eat. If you make your own kitchen garden, which vegetables you want to grow in it?



I. Identify and write the names of these common food items we get from plants and animals.



II. Fill in the blanks:

1. Meat obtained from _____ has a high fat content.
2. _____ is an example of poultry animals.
3. _____ is the term used for rearing honeybees on a larger scale.
4. _____ is a parasite.
5. _____ is a compound present in red chillies.

The teacher can organize a class discussion on the food habits of different regions of India.

She can also use slides to clear the concepts.

The teacher should discuss the following topic in the class:

"Ill- effects of fast food." The best speaker should get a thumbs-up from the teacher.