Chapter 1
Food: Where Does it Come From?

Topics Covered:
1.1 Food
1.2 Ingredients of food
1.3 Sources of Food
1.4 Eating Habits of Animals
1.5 Food Chain
1.6 Steps to Avoid Wastage of Food

Learning Objectives:
1. Why do we need food?
2. How do plants and animals provide us food?
3. What are different kinds of eating habits?
4. What is food chain?
5. What are the ingredients of food?
6. How can we avoid wastage of food?

1.1 FOOD
All living beings need fuel in the form of food to sustain life. Be it plants (flora) or animals (fauna), food is essential for all forms of life. Green plants make their own food through the process called photosynthesis. They are, therefore, called autotrophs. Humans and animals derive food from outside sources, such as plants and other animals. Hence, they are called heterotrophs.

Food performs three basic functions:

1. Food provides energy to work. When you miss a meal you feel tired and sleepy.
2. It promotes body growth. The growth and development at all stages of life are food-dependent processes.
3. Food helps in building new cells to replace old, worn out cells.
4. It provides protection against diseases. The nutrients present in food regularly compensate for any deficiency in the body and help maintain a healthy and disease-free body.

1.2 INGREDIENTS OF FOOD
All of us like to eat tasty and well-cooked food. We also like to have variety in our meals. But have you ever thought how much effort and how many raw materials go into making the vegetables or dal that we eat as part of our meal?
Some dishes, such as boiled rice, may require not more than two ingredients – rice and water. A vegetable curry, on the other hand, may require more than ten ingredients. The sources of these ingredients or raw materials, which are used to prepare food, may be plants or animals.

A list of a few food items is given in the table below. Fill the blank spaces with their ingredients and the sources of these ingredients:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Food item</th>
<th>Ingredients</th>
<th>Source (plant/animal)</th>
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<tbody>
<tr>
<td>1.</td>
<td>Dal</td>
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**Why do we cook food?**

1. Harmful microbes present in food get killed due to heat and this protects us from food-borne diseases like diarrhoea.
2. Raw food is difficult to digest. Cooking makes food soft and easy to digest.
3. Cooking helps us to improve the taste of food.

**1.3 SOURCES OF FOOD**

Most of the food that we eat comes from either plants or animals. So the main sources of our food are plants and animals.

**1.3.1 PLANTS AS A SOURCE OF FOOD**

Green plants are the primary source of food for all living things. Various parts of different plants can be consumed.

<table>
<thead>
<tr>
<th>Roots</th>
<th>Stems</th>
<th>Leaves</th>
<th>Flowers</th>
<th>Fruits</th>
<th>Seeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrot, beetroot, radish</td>
<td>Potato, sugarcane, onion</td>
<td>Cabbage, spinach, mint, lettuce</td>
<td>Cauliflower, saffron, rose</td>
<td>Tomato, chilli, brinjal, papaya</td>
<td>Peas, dals, groundnut, mustard</td>
</tr>
</tbody>
</table>
**Spices and beverages:** Spices such as cardamom, turmeric and chillies, which add taste to our food, are derived from plants. Tea and coffee are common beverages consumed by us. Tea is derived from leaves of tea plant whereas coffee is obtained from coffee beans (seeds). A wide variety of fruit juices are used in beverages/drinks.

**Activity-2**

**Healthy food**

Sprouted dal is an extremely healthy food. Do you know how to make it?

To make sprouts, soak some moong or gram seeds in water overnight. Drain the excess water and tie these seeds in a moist cloth. Keep this cloth moist. In a day or two, you will see small white shoots growing from it. These are called sprouts. You can make a very tasty salad by adding some chopped onions, tomatoes, coriander, lemon juice, and some spices to it.

**Did You Know?**

You must be very careful when choosing what part of a plant you want to cook. This is because some plants are poisonous and harmful, and not fit as food. For example, bitter radish, bitter almonds and green potatoes all contain toxic substances.

### 1.3.2 Animals as a Source of Food

In nature, animals either feed upon plants or other animals. Human use various animal products as food.

Fish, chickens and goat are the important sources of human food. Apart from this, animals like hens and ducks give us eggs. Such animals which provide us eggs or meat are called **poultry animals**.

On the other hand, **dairy animals** like cows and buffaloes give us milk. Food items such as curd, butter, and cheese derived from processing of milk are part of our diet. Ghee, obtained from milk fat, is also used as a cooking medium/ingredient.

Other animal products include honey that is collected by bees as nectar from flowers and made into honey. Humans retrieve the honey from their beehives.

### 1.4 Eating Habits of Animals

All animals do not eat the same type of food. Based on their food habits, animals can be divided into the following categories.

1. **Herbivores:** Animals which eat only plants are called herbivores.
   For example, cows, buffaloes, horses, goats and sheep etc.

2. **Carnivores:** Animals which eat other animals are called carnivores.
   For example, tiger, lion, snake, wolf, etc.
3. **Omnivores**: Animals which eat both plants and animals are called omnivores. For example, humans, pigs, etc. Omnivores also consume sea food including crabs, prawns, eels, clams, besides a large variety of fish.

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<thead>
<tr>
<th>S. no.</th>
<th>Herbivores</th>
<th>Carnivores</th>
<th>Omnivores</th>
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**Activity-3**

**Complete the following table:**

**Intext Questions**

Q.1 Name two main sources of food.
Q.2 What are the edible parts of a plant? Give examples.

1.5 **FOOD CHAIN**

All living organisms depend on each other for food, either directly or indirectly. Green plants are called *producers* as they prepare their own food with the help of air, water, chlorophyll and sunlight. This food produced by plants is made available to other living beings. Thus, animals are dependent upon plants for their food directly or indirectly. Therefore, animals are called *consumers*. Plants are called producers as only they produce food, which is made available to other living organisms through the food chain. A food chain shows ‘who eats whom’. A deer (herbivore) eats grass (producer), the deer is eaten by a lion (carnivore). In this way, a food chain is formed.

**FOOD CHAIN**

Grass (Producer) \[\Rightarrow\] Deer (Herbivore) \[\Rightarrow\] Lion (Carnivore)

So, the components of a food chain are producers and consumers. Animals like lions and tigers, which generally consume other animals, are called top consumers.
Food chain performs two major functions:
- Food is made available from producers to consumers, (herbivores, carnivores, omnivores) resulting in the transfer of food.
- With food transfer, energy is also transferred from one level to the next level.

1.6 STEPS TO AVOID WASTAGE OF FOOD
Due to various factors, not everyone in our country can get proper and enough food to eat. Some of the reasons for this are high growth rate of population, lack of money and insufficient production to meet the demand. Efforts are being made worldwide to increase production of food and to provide food to all. So, it becomes the moral duty of each one of us to try and stop wastage of food. Some steps to avoid wastage of food are:
1. Food must be prepared only in required quantity.
2. It must be stored in closed containers to protect it from germs, flies and insects.
3. Heating prevents food from spoiling.
4. Certain food items can be preserved by just drying them in the sun.
5. Food can also be refrigerated or frozen to avoid bacterial growth or attack.

Activity-4
Is there any item which is not obtained from plant or animal sources? What about table salt? Where do we obtain salt from and what is its chemical name? Find out.

Intext Questions

Q.1 Plants are called ____________, because they make their own food.
Q.2 What are the ingredients for making boiled rice?
Q.3 ________ improves the taste of food.
Q.4 Write three steps to avoid wastage of food.

IMPORTANT TERMS
- **Herbivore**: Plant-eating animal.
- **Carnivore**: Flesh-eating animal.
- **Omnivore**: An animal that eats both plants and animals.
- **Poultry Animals**: Domestic fowl – chickens, turkeys, ducks and geese.
- **Refrigerate**: To store (food or drink) at a cold temperature in order to chill or preserve.
SUMMARY

1. Food can be obtained from two main sources: plants and animals.
2. The following parts of plants are used as food: stems, leaves, roots, fruits, seeds and flowers.
3. Animals are the source of food for humans and other animals, providing milk, eggs, honey, meat, etc.
4. Animals can be categorised as herbivores, carnivores and omnivores depending on their food habits.
5. A food chain tells us who eats whom in nature. Most food chains begin with plants.
6. Cooking of food destroys germs, and makes food tasty as well as easier to digest.
7. Food is a basic necessity but is not available to all. Therefore, it should not be wasted.

Exercises

Q.1 MULTIPLE CHOICE QUESTIONS:
1. A deer eats only plant products and is therefore called a/an:
   (a) carnivore  (b) herbivore  (c) omnivore  (d) none of these
2. ____________ is a common beverage in south India.
   (a) Milk  (b) Aerated drink  (c) Coffee  (d) Tea
3. Cooking food protects us from ____________ diseases.
   (a) communicable  (b) water-borne  (c) food-borne  (d) chronic
4. Animals depend on ____________ directly or indirectly for food.
   (a) insects  (b) plants  (c) birds  (d) humans
5. Cows are:
   (a) omnivores  (b) carnivores  (c) herbivores  (d) none of these
6. Animals do not provide us food. Is it true?
7. Raw/Cooked food can be digested easily. Select one.
8. Organisms which prepare their own food. ____________
9. Food product made and stored by bees. ____________
10. A flower used as food. ____________

Q.2 VERY SHORT ANSWER QUESTIONS:
1. We are ____________ because we eat both plants and animals.
2. Cheese is a/an ____________ product.
3. Ghee is obtained from ____________.
4. ____________ are always at the lowest level in a food chain.
5. Food does not give us energy. True or false?

Q.3 SHORT ANSWER QUESTIONS:
1. Why are plants important to us?
2. Why are animals important to us?
3. Give two examples each of -
   (a) method of food preservation
   (b) spices
   (c) beverages
4. Name the food items animals provide us with.
5. What are ingredients?

Q.4 LONG ANSWER QUESTIONS:
1. Why do we need food?
2. Why do we cook food?
HOTS Questions (Higher Order Thinking Skills):

1. We need warm milk to set curd. Why do you think very cold or very hot milk cannot be converted to curd?
2. It is not possible to sprout dry seeds of chana/moong dal. Why?

Activities

A. Classroom Activity

People from different regions of India eat different types of food. Find out the different foods consumed in different states. Also, find out what ingredients are used to make food in your state.

B. Conversational Activity

Divide your class into four groups. Each group must collect information about animals with different food habits, i.e., herbivores, carnivores, etc. Find out:
- The names of animals in each category.
- What helps them to eat their particular type of food?

Now organise a classroom discussion where the members of each group share information with other groups.

C. Exploration Activity

Visit a zoo and carefully observe the animals kept there. Notice the feet, claws, nails, teeth, eyes, horns, and other body parts of different animals. If possible, click pictures of these parts. Now, explore the advantages of these features.

D. Experiment/Project

Prepare a model of a food chain. You can use Plaster of Paris, cardboard cut-outs of animals, grass, origami plants, etc., to depict various stages of a food chain.

Value Based Questions:

Shruti went to her friend’s birthday party. Many people had gathered at the party. People were enjoying different food items but also left a large quantity of food uneaten in their plates. On the other hand, Shruti took only that much food which she could eat. The leftover food was in the waste bins kept outside. Some poor children were seen taking out the food from the waste bins.

Now, answer the following questions based on above information:

1. Why did Shruti take only that much food in her plate which she could eat?
2. What inference do you draw from the act of other people?
3. What is the message Shruti’s actions gave to all?