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Human Body: Food We Eat



All living things need food to stay alive. Food gives us strength to work and play. It helps us to grow and remain healthy and strong. It is also needed for the repair of different parts of the body. It protects us against diseases.

Learn about

- What does food contain?
- Components of food
- Balanced diet
- Avoiding wastage of food
- Care for plants and our environment

Plants and animals are the two main sources of food. We get vegetables, cereals, pulses, fruits, seeds, and oil from plants. We get meat, fish, milk, and eggs from animals. We should eat these foods in the right amounts to stay healthy.

► What Does Food Contain?

Nutrients are the substances present in our food that help living organisms to grow and survive. Different nutrients have different functions.

Some nutrients give us energy to do work, some are required for the proper growth and repair of the body, while some protect us from diseases.

Let us now study in detail about food and the nutrients that are present in our food.

► Components of Food

Different food items are rich in different nutrients. There are five main nutrients found in our food: carbohydrates, proteins, fats, vitamins, and minerals. Apart from these nutrients, our body also needs a good amount of roughage and water.

Carbohydrates

Carbohydrates provide energy to our body. *Food items that are rich in carbohydrates are called **energy-giving foods**.* We need carbohydrates in large quantities. The two main types of carbohydrates are sugar and starch.

Fruits such as bananas and apples are good sources of sugar. Potatoes and cereals (such as rice, wheat, and maize) are good sources of starch.



Foods rich in sugar



Foods rich in starch

Carbohydrate-rich foods

Proteins

Proteins are the nutrients that help in the growth and repair of our body. They also help in building our muscles. *Foods that are rich sources of proteins are called **body-building foods**.*

Young children should include more protein-rich foods in their diet¹ because their bodies are still growing.



Protein-rich foods

Milk and milk products (such as home-made cheese and paneer), pulses, sprouts, soya bean, meat, fish, and eggs are rich sources of proteins.

Fats

Fats are the nutrients that provide more energy to our body than carbohydrates. They help to keep our body warm. *Foods that are rich sources of fats are called **energy-giving foods**.*

Oil and nuts are examples of fat-rich foods. Ghee and butter (milk products) are also fat-rich foods.



Fat-rich foods

Our body requires only a little amount of fat. Excess fat consumed by us is stored in our body for future use. Too much intake of fat can make us obese². People engaged in heavy physical activities, such as labourers, need to include more carbohydrate- and fat-rich foods in their diet. This will provide them with sufficient energy to do work.

¹diet: the kind of food we eat regularly

²obese: fat or overweight

Activity



Aim: To grow sprouts from whole seeds

Materials required: Dry whole seeds of gram or mung, a bowl, and a cloth

Procedure:

1. Wash and soak the seeds in water for a day.
2. Drain the excess water, and keep the soaked seeds in a bowl.
3. Cover the bowl with a wet cloth. Make sure that the cloth does not get dry.
4. Note your observations after 2 or 3 days.

Observation: You will see that a white structure has emerged from the seed.

Conclusion: The small white structure in seed is called sprout. It indicates that germination of the seeds has taken place. Sprouted seeds are highly rich in protein. We should include them in our diet.

Extension: Chop tomatoes, onions, and coriander leaves. Mix them to the sprouts and add lemon juice to it. Sprinkle salt and pepper on it. Your nutritious sprout salad is ready.



Vitamins and Minerals

Vitamins and minerals are the nutrients that protect our body from diseases and keep us fit and healthy. These nutrients are required in small amounts. *Foods that are rich sources of vitamins and minerals are called protective foods.*

A, B, C, D, E, and K are the different types of vitamins found in our diet.

Calcium, potassium, iodine, and iron are some of the minerals in our diet.

Different vitamins and minerals have different roles to play within the body.

- Green vegetables, carrots, sweet potatoes, eggs, and dairy products are rich in vitamin A, which improves eyesight and maintains healthy skin.
- Milk, fish, and eggs are rich in vitamin D, which is important for healthy bones and teeth.



Fruits and vegetables are rich sources of vitamins and minerals.

- Calcium and iron are examples of minerals needed by our body.
 - Calcium is needed for the formation of bones and teeth. Milk, curd, and home-made cheese are rich sources of calcium.
 - Iron is needed for the formation of blood. Green leafy vegetables (such as spinach), strawberries, and watermelons are rich sources of iron.
- Other important minerals required by our body are iodine, potassium, and sodium.

Think and Discuss

Why is home-made cheese preferred over packed cheese?



Milk is a good source of calcium.



Spinach, strawberries, and watermelons are good sources of iron.

Roughage and Water

Some part of the food that we eat does not get digested completely. *The part of the food that cannot be digested by our body is called roughage.* It is also important for us as it adds bulk to our food and allows waste material to pass out of our body easily.



Sources of roughage



Water is essential for the proper functioning of our body.

Water is an essential part of our diet. It is important for digestion and is an essential part of the blood and other body fluids. We must drink plenty of water everyday. We should also make sure that the water we drink is clean. Otherwise, we may fall ill.

► Balanced Diet



A **balanced diet** is a diet that contains all the nutrients in the right amounts, along with roughage and water. It is important to eat a

balanced diet for proper growth and development of our body. We should eat a balanced diet that includes required amounts of food items like

(i) cereals (ii) pulses and sprouts (iii) green leafy vegetables (iv) milk and milk products (v) oils and nuts (vi) locally available vegetables and fruits in plenty (vii) eggs, fish, and chicken. Vegetarians can derive most of the necessary nutrients from cereals, pulses, and a milk-based diet.

Fact File

Milk is considered a complete food, but it contains very little iron.

Different groups of people require different amounts and kinds of food. It depends on the age and the amount of physical activity of a person. Some examples are given below:

- A person who does more physical labour (such as an athlete or a labourer) needs a diet that is richer in carbohydrates in comparison to a person who sits and works in an office. A person working in an office should have a diet low in fats to avoid gaining weight.
- Growing children need a protein-rich diet that helps in the overall development of their bodies and minds. They should also have more of protective foods like fruits and vegetables.
- Elderly persons usually need a low-fat, high-fibre diet. To meet their need of vitamins and minerals, they should also have milk and milk products, fresh fruits, and vegetables.



Balanced diet

Questions



A. Give two examples for the following.

1. Essential substances present in the food,
2. Main types of carbohydrates,
3. Body-building foods,
4. Main nutrients in protective food,

B. Fill in the blanks with suitable words.

1. Young children should include more foods in their diet.
2. Fats provide more energy than
3. is needed for the formation of bones and teeth.
4. is the essential part of the blood and other body fluids.
5. Iron is needed for the formation of

► Avoiding Wastage of Food



Food is necessary for our survival. We should not waste food. By avoiding wastage of food, we can feed a lot of starving people. We should take the following steps to avoid wastage of food:

- Take small servings of food during meals so that you can finish everything on the plate.
- Avoid cooking a large quantity of food.
- Store cooked food in the refrigerator to avoid spoilage.
- Raw vegetables and fruits should preferably be kept in the refrigerator (especially during summers).
- Avoid exposure of cut fruits and vegetables to air for a long time.
- Parents should teach children not to waste food.



Food stored properly, inside a refrigerator

Food gets spoilt when it is not stored properly. Eating spoilt food is unhealthy and can make us sick. Some methods of preserving food are given below.

Pickling In this method, fruits and vegetables are mixed with salt and oil. An example is the pickling of mango and garlic.

Drying In this method, water is removed from the food. The food is then kept in an airtight container. An example is the drying of chillies in the sun.



Refrigeration Cooked food items, vegetables, and fruits are kept inside the refrigerator at a low temperature.

Deep freezing In this method, foods like fish, meat, and seafood are kept at a very low temperature.



Case Study

People from different parts of India migrate to metro cities in the hope of better job opportunities, quality education, healthcare facilities, and an urban lifestyle. Due to the continuous increase in mixed culture, the food and beverage industry has seen a significant rise. They contribute significantly to food waste due to overproduction and sometimes inefficient storage conditions.

Based on the above information, answer the following questions:

- What is the reason of food wastage in the given situation?
- What measures can we take at our level to avoid food wastage? List any two points.
- Explain one method that can be used to avoid food waste, especially in restaurants and large social events.

Care for Plants and our Environment



Plants are very important for us.

- They provide us food as well as other plant products like fibres for making cloth, wood for paper, medicines, and timber.
- Their most important function is to give us fresh air containing oxygen.
- They bind the soil, and thus prevent soil from being carried away.

Therefore, we should take care of plants. We should avoid cutting of trees in large numbers. We should plant saplings, irrigate them, and add sufficient

manure whenever necessary, so that they grow properly and bear healthy fruits and vegetables.

Apart from a healthy and balanced diet, we also need a clean, green, and healthy environment so that we remain fit and free from diseases.

Ways to make our environment clean

- Reduce pollution of air, water, and soil.
- Avoid dumping garbage on roadsides and in your neighbourhood.
- Reduce the use of plastics.
- Do not cut trees, as they are the 'green lungs' of the Earth.
- Plant more and more trees.



Growing a plant

Wrap Up

- Nutrients are the substances present in different food items that are needed for good health and proper growth of our body.
- The five main nutrients found in our food are carbohydrates, proteins, fats, vitamins, and minerals. Roughage and water are also present in our food.
- Carbohydrates provide energy to the body.
- Proteins help in the growth and repair of our body, and in building our muscles.
- Fats provide more energy than carbohydrates and keep our body warm.
- Vitamins and minerals protect our body from diseases.
- Roughage is the part of food that cannot be digested and helps to remove waste materials from our body.
- Water carries nutrients from the food to different parts of our body, helps in digestion, and is an essential part of the blood and other body fluids.
- A balanced diet contains all nutrients in right amounts, along with roughage and water.
- We should not waste food and should follow the necessary steps to avoid spoilage and wastage of food.

Exercises

SECTION I



A Choose the correct option.

- Which of the following is/are the function(s) of food?
 - Food gives us strength to work and play.
 - Food helps us to grow.
 - Food helps us to remain healthy and strong.
 - All of these
- Which of the following substances help in removing waste from our body?
 - Carbohydrates
 - Roughage
 - Vitamins
 - Proteins
- Which of the following minerals are required by our body?
 - Calcium
 - Iodine
 - Iron
 - All of these
- Which of the following types of food help in building our muscles?
 - Protein-rich foods
 - Energy-giving foods
 - Vitamins and minerals
 - Roughage and water
- In which of the following methods, we keep raw peas at a very low temperature?
 - Deep freezing
 - Canning and bottling
 - Pickling
 - Refrigeration

B Assertion and Reasoning questions.

- Assertion (A):** Food rich in carbohydrates are energy-giving foods.
Reason (R): Carbohydrates provide energy to our body.
 - Both A and R are True
 - Both A and R are False
 - A is True and R is False
 - A is False and R is True
- Assertion (A):** Body-building foods, such as meat, fish, eggs, and beans, are essential for our body.
Reason (R): These foods help in keeping our body warm.
 - Both A and R are True
 - Both A and R are False
 - A is True and R is False
 - A is False and R is True

C Choose the correct word to fill in the blanks.

- (Oil/Potato) is a rich source of fat.
- Egg is a rich source of (energy/protein).

3. Roughage (can be/cannot be) digested by our body.
4. Cooked food should be kept (covered/uncovered).
5. Mango is preserved by (pickling/cleaning).

D **Name the following.**

1. The substances needed for energy, maintaining health, and proper growth of our body
2. Foods that are rich source of protein
3. A diet containing all the nutrients in the right amounts, along with roughage and water
4. The method of food preservation in which water is removed from the food
5. Foods rich in vitamins and minerals

SECTION II

E **Short answers questions.**

1. Why do we need food?
2. Define nutrients.
3. Name the five types of nutrients.
4. Name two foods rich in Iron.
5. Amit's doctor has advised him to add more roughage to his diet. Explain the role of roughage in our body.
6. Why should we drink enough water everyday?
7. Why do young children need more protein-rich food in their diet?
8. Why do we need to store food properly?

F **Long answer questions.**

1. Suppose your school has announced a picnic next week. Name some food items that will give you enough energy to keep playing all day. Which group do these food items belong to?
2. Rishi loves to watch superhero movies and wants to become strong and healthy like them. Think and write about how certain foods protect your body. Give examples of these protective foods.



- Ashima has asked her parents to organise a party for her birthday. Write three simple steps that she can take to ensure the food does not go to waste.
- Abhir's grandmother loves gardening. She even encourages Abhir to take care of plants at their home and in the neighbourhood. Why do you think it is crucial for us to care of the plants around us? Think and write some of the practical ways we can follow to help plants grow and stay healthy in our community.

Picture Study



Look at the picture of the breakfast served on the table. Write the names of the food items shown. Mention any one major nutrient present in each food item.



Food item	Major nutrient present

My Learning Corner



A Think about

- We should drink milk daily. why?
(Hint: Which of the nutrients does milk contain?)
- Why should children take a protein-rich diet?

B Try out

- Write a short story based on avoiding wastage of food in 100-150 words. You could also try to type the story on computer.
- Collect any five empty food packets that are usually thrown away in the dustbin. Cut out the parts of the packets where the name of the food item

and its nutrients are printed. Paste the cuttings in your Science Scrapbook. Note down the names of the food items and the nutrients each contains, in the format given below.

Packet cutting

Name of the food

Nutrients

3. Interact with a dietician and discuss what you should eat during your growing age. Also plan a weekly diet chart with his/her help.
4. Visit a nearby park with your mother, carrying along a notebook and a pencil. Interact with the gardener and find out the names of different trees in the park. Also enquire, which of the ornamental plants does he grow during different seasons. Ask him how he takes care of the plants, like what is the irrigation process, how to add manure, and the method of protection from pests. Make a project on 'Plant Care' based on the information you have collected. You can also take pictures of the area and the plants, and paste them in your Project file.
5. On a political map of India shade the states, as mentioned below.
 - a. Wheat-producing states—in orange
 - b. Rice-producing states—in blue
 - c. Maize-producing states—in red

Self-Assessment

Now that you have completed the chapter, score each of the following tasks from 1 to 5 to indicate how well you can do them.

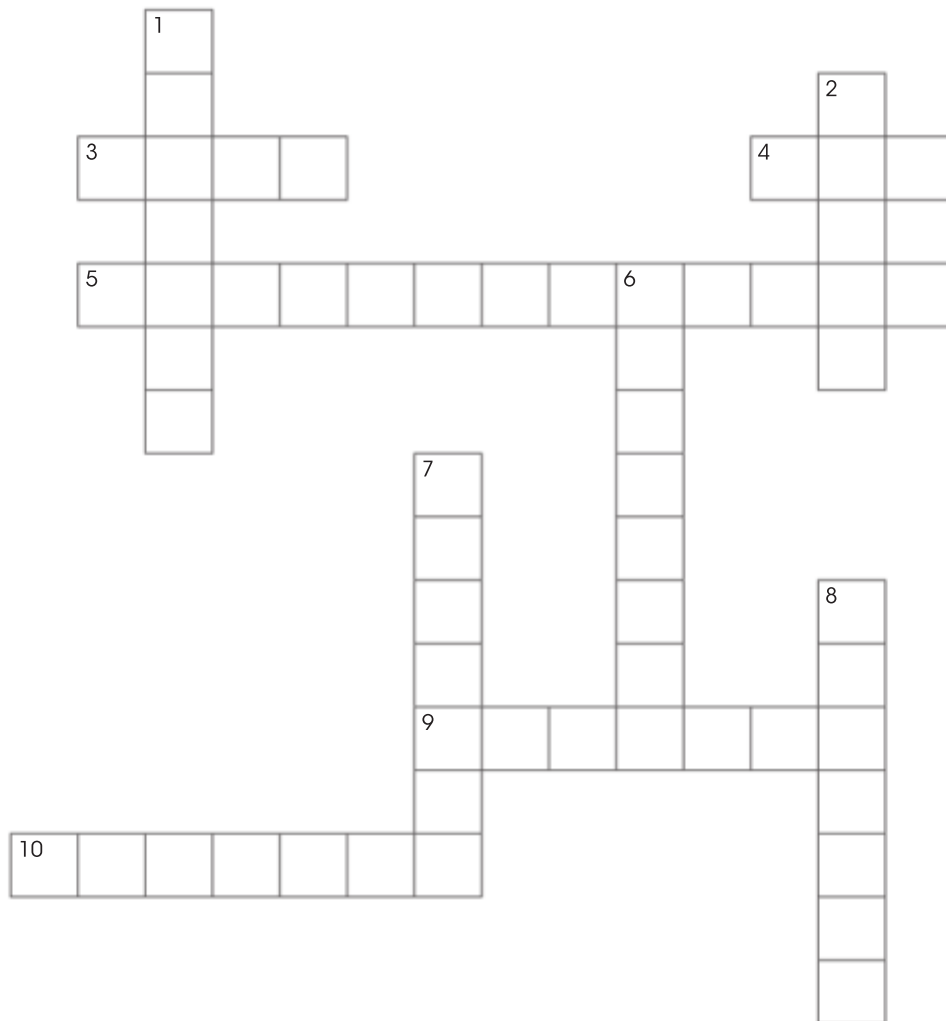
Score 5 = I can definitely do this.

Score 1 = I cannot do this yet.

I can...	My score
• explain what nutrients are and its types.	
• explain the components of food.	
• explain balanced diet.	
• list the ways to avoid wastage of food.	
• explain how plants are important to us and the steps involved in taking care of them.	

Worksheet

Complete the Word Puzzle given below based on the clues provided.



Across

3. Food that is a rich source of vitamin D
4. The nutrient that provides more energy than carbohydrates
5. Energy-giving food that is needed in large quantities
9. Calcium is a
10. Nutrient that helps in growth and repair of the body

Down

1. A food that is a good source of iron
2. The essential part of blood and other body fluids is
6. The part of food that cannot be digested by our body
7. Nutrient present in protective foods
8. Bones and teeth are made up of