



Can you recall?

Which are the various groups of foodstuffs? Name the ones you see in the pictures. Which main constituents of food do we get from them?



7.1 : Foodstuffs

Living things take food and water and use them for a variety of purposes such as :

- Obtaining energy
- Growth of the body
- To carry out day to day functions of the body
- To fight diseases

Nutrients and foodstuffs

There are six main nutrients in our food : Carbohydrates, fats, proteins, fibre, vitamins and minerals. These nutrients are present in the different food items we eat in differing proportions. Let us learn more about some of them.

Energy-giving nutrients – Carbohydrates

Our main need is of energy. It is fulfilled by carbohydrates. Hence, our diet includes a large proportion of cereals in the form of rice, chapatti or roti, bhakri and bread which contain carbohydrates. Cereals are our staple food.

In living things, the process of taking in food and water and using it for growth and other purposes is called 'nutrition', and the constituents of food useful for these purposes are called 'nutrients'.



7.2 : Cereals



7.3 : Fatty foods

Fats

Some part of our energy requirement is also fulfilled by fatty foods such as oil, ghee and butter.

We get energy in the form of heat from the food we eat. Heat is measured in kilocalories. Hence, the energy in food items is also measured in kilocalories (Calories).

Children of growing age need to get approximately 2000 to 2500 Calories from the food they eat.

Proteins

We need proteins for the purposes of growth, repairing the wear and tear of the body and for other life processes. We get proteins from the sprouts, milk and milk products, meat and eggs in our food.



7.4 : Proteins

Minerals and vitamins

To improve the body's resistance to disease and for other life processes the body needs vitamins, minerals and fibre in the diet. We obtain these nutrients mainly from vegetables and fruits.

We require vitamins and minerals in small quantities, but their deficiency can lead to various diseases. Let us learn more about them.

The body needs several inorganic substances. They are called **minerals**. The table below gives examples of some minerals and provides information about their functions in the body, the various sources of the minerals as well as the diseases caused by their deficiency.

Mineral	Functions	Sources	Deficiency Diseases
Iron	Carrying oxygen to all parts of the body.	Meat, spinach, apples, raisins	Anaemia
Calcium and phosphorous	Strengthen bones and teeth.	Milk and milk products. Green leafy vegetables, meat.	Bad teeth, brittle and weak bones.
Iodine	Controls growth, speeds up chemical reactions in the body.	Raisins, beans, fish, sea food	Goitre
Sodium and potassium	Maintains the body's water balance and functioning of the muscles and the nervous system	Salt, cheese, leafy vegetables, fruits, pulses	Inefficiency of muscles

Vitamins

Water soluble vitamins :

Vitamin B and Vitamin C dissolve easily in water. So they are called water soluble vitamins. They are thrown out of the body through the water in sweat and urine. Hence, a regular supply of these vitamins is essential.

B₁, B₂, B₃, B₆, B₉ and B₁₂ are the important types of Vitamin B.

Water insoluble vitamins : These vitamins are insoluble in water but are soluble in fatty substances. They get stored in the body. Vitamins A, D, E and K are fat soluble vitamins.

Vitamins – Sources and functions

Vitamin	Helps in	Sources	Deficiency Diseases
A	Protects eyes. Helps to keep skin, bones and teeth healthy.	Carrot, milk, butter, dark green vegetables, sweet potatoes, deep yellow fruits and vegetables	Night blindness (inability to see in dim light), Xeroderma (dry skin)
B₁	Helps in proper functions of nerves and heart.	Milk, fish, meat, cereals, nuts, pulses	Beriberi (Nerve disorder), Muscle weakness/inefficiency
B₉	Growth of the body.	Deep green vegetables, papayas, kiwis	Improper growth, anaemia, forgetfulness, slow movements
B₁₂	Formation of red blood cells.	Meat, milk products	Anaemia
C	Protects body tissues; formation of collagen – a protein essential for gums, teeth, bones and skin.	Amla, kiwi, oranges and other citrus fruits, cabbage, tomatoes, green leafy vegetables.	Scurvy (bleeding of gums), thyroid malfunction, delay in healing of wounds.
D	Absorbs calcium and phosphorus for healthy bones and teeth.	On exposure to sunlight vitamin D is made in the human body from some substances in milk, fish, eggs and butter	Rickets (softening of the bones, causing pain and fractures)
E	Smooth functioning of Metabolism inside the cells, reproduction, maintaining efficiency of muscle cells.	Wheat germ, green leafy vegetables, tender leaves, vegetable oils	Weak muscles, obstruction in reproduction, skin disorders
K	Helps in clotting of blood.	Green leafy vegetables, green cabbage, broccoli, sprouted pulses, yellow of eggs	Excessive bleeding after an injury



Group activity : The information in the above chart should be enacted through role play.

7.5 : Vitamins



Always remember...

Some vitamins are very sensitive to heat and light. For example, Vitamin C is easily destroyed during cooking. Therefore, Vitamin C rich foods should be eaten raw.

In the past.....

Casimir Funk was a scientist who belonged to Poland in Europe. In a scientific article, he read that people who ate brown rice were less likely to get beriberi than those who ate fully milled rice.

He was able to identify and isolate the substance which prevents this disease. He named it 'vitamine'. He also proposed that other disorders like scurvy, pellagra and rickets were also caused by a deficiency of various vitamins.



Scurvy



Rickets



Goitre

Probiotics

You know that the useful micro-organisms which convert milk into yoghurt are present in yoghurt and in buttermilk. They are called 'probiotics'. Lakhs of micro-organisms reside in our intestines. Their presence in such large numbers is essential for our health. Hence to maintain them in our body, we should include probiotics such as yoghurt and buttermilk in our daily diet.

When we suffer from loose motions and vomiting, we throw out micro-organisms along with intestinal water. Some medicines can also kill them. Therefore, we need to take extra yoghurt/buttermilk to restore their numbers.

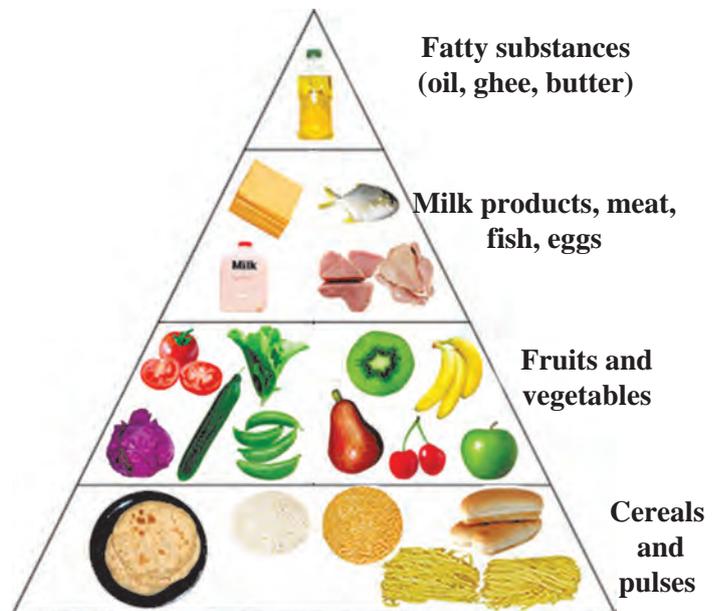
A balanced diet

All that we consume during the day is together called our 'diet'. A diet containing adequate quantities of all nutrients is called a Balanced Diet.

To build a strong and healthy body, you need all nutrients in the right proportion and in sufficient quantities in your daily diet.

Significance of a balanced diet:

- An increased capacity to work.
- Good physical and mental health.
- Increased capacity to fight/resist diseases.
- Helps in proper growth of the body.



7.6 : The balanced diet pyramid

Apart from having a balanced diet, we also need to exercise regularly to keep ourselves fit and healthy.

How to get a balanced diet?

To ensure that we get a balanced diet from the food we eat, we can make a food pyramid. All food which we eat is classified into various groups. The space allotted to each food group in the pyramid, depends upon the proportion in which it should be included in our diet. Hence, we can choose foods from each group daily according to the space allotted to it in the pyramid.

If we choose some items from each group in the right proportion according to the pyramid shown on page 53, we can make sure that we are getting a balanced diet.

Fibre

If we select a daily diet which includes vegetables, fruits, sprouts and cereals according to the pyramid, we will also get fibre in sufficient quantity.



Can you recall?

What trouble do we have to face if we do not get enough fibre from our daily diet?

What care must be taken to make sure that fibre is not lost or removed from the food we eat?

Water

Alongwith all the other nutrients, the body also needs an adequate supply of water. For this purpose, we must drink milk, buttermilk, lemon juice, sherbets, fruit juices and plenty of water.

Malnutrition

Malnutrition occurs when all the nutrients that the body needs are not obtained in the proper proportions from the diet. This happens when a person does not get sufficient food or when the diet is not balanced. If one's diet exceeds one's need, it is called **overnutrition**.



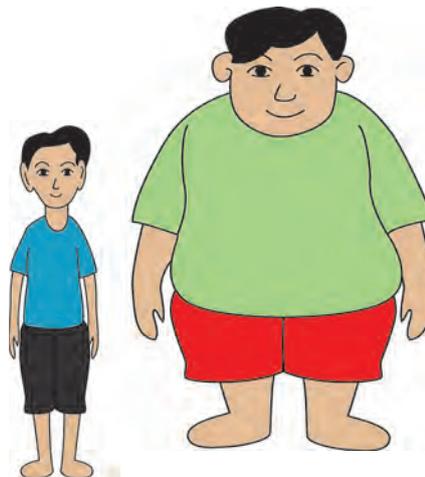
Use your brain power!

Choose a balanced diet for one day according to your preferences.



Always remember...

If our need for nutrients is met through the food we eat, the nutrients are better utilised in our body. Hence, the best way to good health is taking a balanced diet and avoiding the deficiency of any nutrient.



7.7 : Malnutrition and overnutrition

Junk food

Chocolates, noodles, burgers, pizzas, chips, bottled soft drinks, attractively packaged snacks as also ready fried foodstuffs available in the market such as *wadas*, *pakodas*, etc. are very tasty and we like them very much. However, these foodstuffs contain refined flour, sugar, oil in large proportions. When refined flour, is made from wheat or when sugar is made from sugarcane, many nutrients in the wheat or sugarcane are lost in the process. Hence, all we get from these foods is energy and our hunger is satisfied.

Naturally, if we eat a lot of junk foods, we will get insufficient quantities of the items from other food groups. If this happens frequently, our body soon experiences a shortage of proteins, vitamins and minerals and that may lead to malnutrition.

Junk food eaten frequently also causes obesity. Obesity is not good for our health.

As such foods do not supply all the necessary nutrients, they are called **junk foods**.

How to avoid obesity?



- Have a balanced diet.
- Eat whole grains. Eat fruits and vegetables with their skins.
- Increase use of bicycles
- Play more outdoor games



- Do not eat if you are not hungry.
- Do not watch TV while eating.
- Do not use motor vehicles for travelling a short distance.
- Avoid precooked, packaged foods.



Adulteration of food

In order to earn more profits, cheaper substances of low quality are mixed with the foodstuffs. These substances are called adulterants and adding them to foodstuffs is called **adulteration of food**. Adulterants may even be poisonous or harmful to health. Such adulterated food is impure and harmful and so unfit for consumption.

Adulterants

Adulterants used to adulterate food are such that they will remain unnoticed even when mixed with the food.

Food Items	Adulterants
• Milk	Water, chemicals like urea, starch
• Chilli powder	Brick powder, powdered pumpkin
• Pepper corns	Papaya seeds
• Ice-cream	Washing soda, paper pulp
• Rice	Small white stones
• Peanuts	Reddish pebbles/stones



Always remember....

Adulteration of food is a crime. Do not eat adulterated foods.



What we have learnt-

- Nutrition is the process of taking food and water and using them to obtain energy, and for the purposes of growth and other bodily functions.
- A diet containing all nutrients in the right quantity is called a balanced diet.
- Carbohydrates, fats, proteins, vitamins, minerals and fibre are the nutrients in food. A balanced diet includes all nutrients in the right quantities.
- The food pyramid helps us to choose a balanced diet.
- Whether a person is malnourished or has deficiency diseases depends upon the proportions of food taken.
- Junk food gives us energy but not other nutrients.
- Adulterated food is impure and harmful to health.



Exercise

1. Fill in the blanks.

- The process of intake of food and utilising it for all life processes is called
- All the substances in our food which are useful for various bodily processes are called
- Carbohydrates and provide to our body.
- In a balanced diet, all the nutrients are present in the proportion.
- In the food pyramid, cereals are given the maximum space because they fulfil our requirement.
- Intake of more food than necessary causes

2. Spot the following in the table of vitamins and minerals.

- The nutrient present in citrus fruits.
- Vitamins / minerals present in milk.
- Causes and symptoms of night blindness, scurvy, rickets, beriberi.
- Foods required to prevent the above diseases.
- Causes of anaemia.
- Essential mineral for healthy bones and teeth.
- Sensory organ affected due to the deficiency of Vitamin A.

3. Choose the correct alternative.

- Pulses are a very good source of
(1) carbohydrates (2) proteins
(3) fats (4) minerals
- provide maximum energy to the body.
(1) Cereals (2) Leafy vegetables
(3) Water (4) Amla
- Goitre is caused by a deficiency of the mineral
(1) iron (2) calcium
(3) iodine (4) potassium
- is a type of junk food.
(1) Orange (2) Milk
(3) Bhakri (4) Chocolate

4. Use the food pyramid to select food items of your choice for three days.

Conditions:

- The diet for all three days should be balanced.
- There should be variety in the items chosen for the three days.

Activity :

- Obtain information on simple methods of spotting the adulteration in foodstuffs and try them out.

