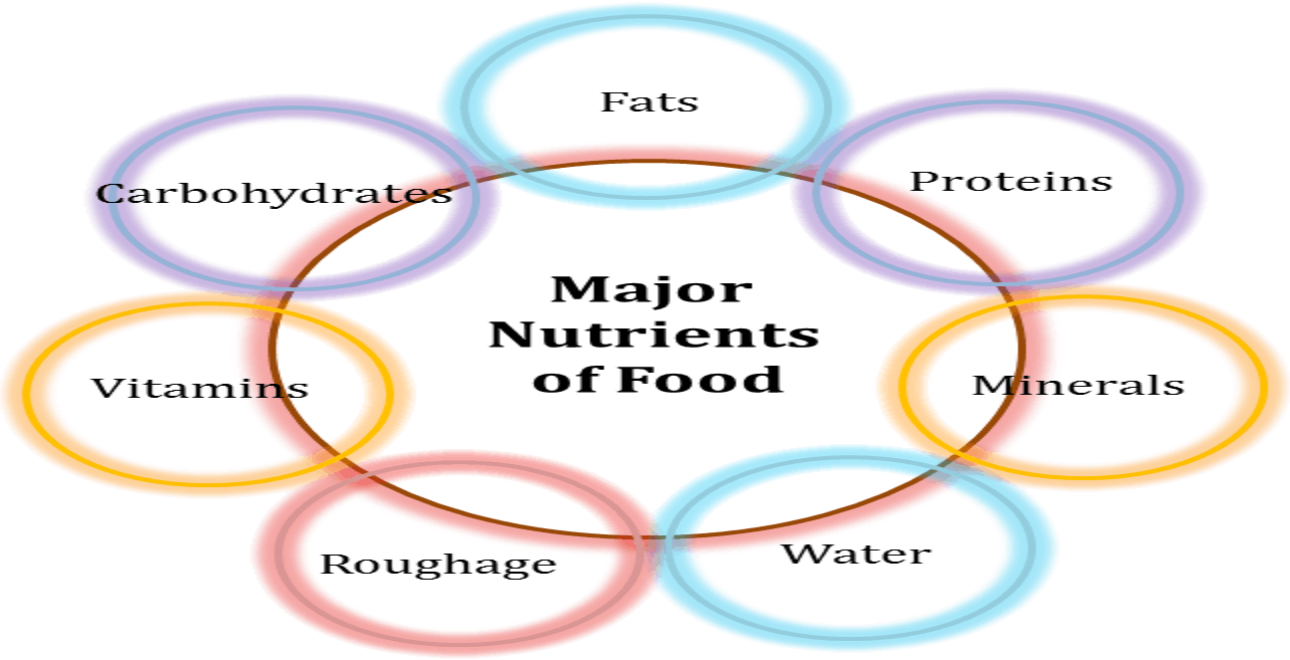
# Class VI
# Subject- Science
# Chapter-2 Components of food(Part-1)

**You will learn about**

- Components of food / Nutrients.
- Importance of each components of food/Nutrient.

## Nutrients

The components of food which help our body in growth, maintaining life and to fulfill different needs of the body are called nutrients .
Carbohydrates, fats, proteins, vitamins and minerals are the five primary nutrients.
**Carbohydrates & fats are energy yielding nutrients. Proteins are body building nutrients.** Proteins help in growth. **Vitamins & minerals are protective nutrients** which activate growth and resistance to various diseases. **Fibre (Roughage) present in food and water are not the nutrients but are essential part of food**. All the seven components are essential part of food and they work together.



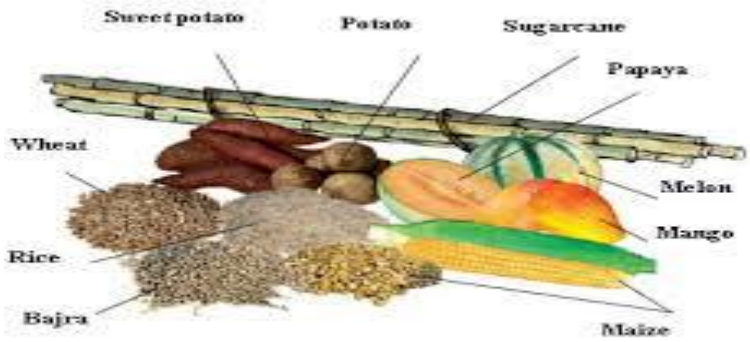

## Carbohydrates

Carbohydrates provide energy to our body. Energy from carbohydrates helps in doing work and keeps our body warm.
Carbohydrates are of two kinds: Sugars and Starch. Both are obtained from plants.

## Sugar

Sugar is a simple carbohydrate. Some common sugars are glucose, sucrose, fructose, lactose and maltose.

- Sucrose is obtained from sugarcane which we add in tea, coffee, syrup, cake, pudding's etc.Sucrose is also obtained from sugar-beet.
- Honey is a mixture of a variety of sugars with traces of minerals.
- Many sweet tasting juicy fruits contain fructose, glucose and sucrose.
- Fresh milk contains lactose and fermented starch is maltose.
- Glucose is the simplest of all sugars and gives instant energy.



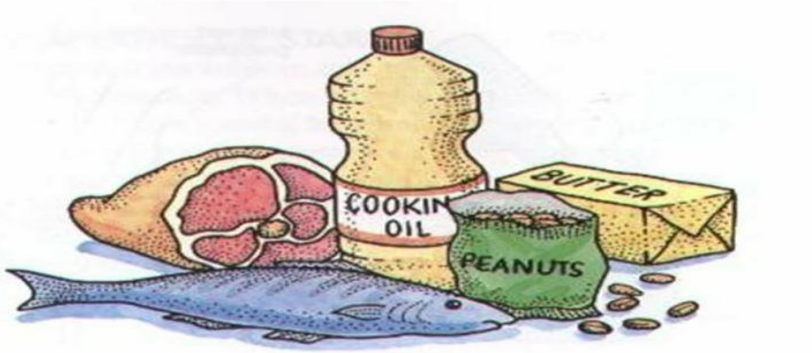

## Starch

Starch is a complex carbohydrate. It is present in cereals like rice, wheat, barley, oat, maize, millets and vegetables like potatoes, sweet potatoes, trapa(singhara). Starch is used in the preparation of bread, loaf(chapatti), naan, buns, cake, idli and other items.

## Fats and oils

Fats and oils are almost similar substances. Fats are saturated fats which are normally solid at room temperature. Oils are unsaturated fats which are normally liquid at room temperature. On warming, fats melt into liquid. Fats are also called energy giving food.Infact,fats give much more energy as compared to the same amount of carbohydrates.

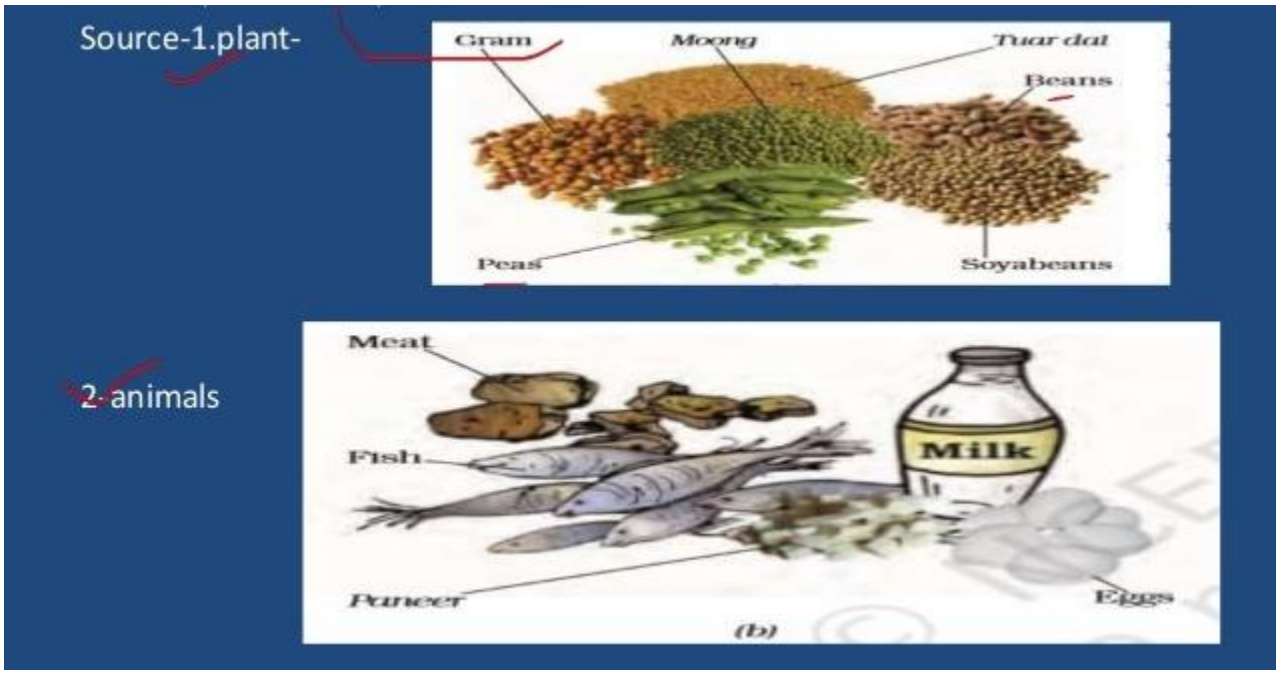
Fats come from animals sources like pure Ghee, milk, butter, cream, cheese, egg and meat. Oil comes from plant sources. Edible oil comes from seeds of mustard, sesame, canola, sunflower, olive, peanut(groundnut), coconut and other nuts.



## Proteins

Proteins are the body building food. Proteins help in growth and repair of the injured or damaged parts of the body. Growing children need more of proteins to help rapid growth. It is an essential nutrient as every part of our body is made of proteins.

- Skin, muscles,bones and blood cells are proteins.
- Blood and blood cells are proteins which help in the distribution of oxygen, food, antibodies and enzymes to different parts of the body.
- Hair on head, nails on fingers and toes are pure proteins.
- Digestive juices are enzymes and all enzymes are proteins(digestive juices helps in breaking down of food).
  Proteins come from both, the plants and the animals.




## Vitamins

Vitamins are the substances that occur in our food which we get from plants and animals. Vitamins though required in a small quantity are essential for good health and protection of our body against diseases. It also helps in keeping our eyes, bones, teeth and gums healthy. Lack or shortage of vitamins in our food may lead to illness.

### Naming the vitamins

Vitamins are of different kinds known by different names. Some of these are Vitamin A, C, D E& K. There is also a group of vitamins called vitamin B- complex.

Vitamins are grouped into two:

a) **Fat soluble vitamins** – Vitamin A, D, E and K.They are soluble in fat and stored in the body.

b) **Water soluble vitamins** – Vitamin B and C. They are soluble in water and are not stored in the body.

**Vitamins, their Sources and Uses**

| Vitamin | Sources | Uses |
|---|---|---|
| **Vitamin A** | Green- yellow fruits and vegetables like carrot and papaya, butter, ghee, cod(fish)liver oil and corn. | Keeps our skin and eyes healthy. |
| **Vitamin B** | Yeast, sprouts, wheat- germ, whole grains,brown rice, beans, porridge(daliya,khichdi), turnip, skinned potato, bananas ,eggs and meat. | Relieves from nerve pain, protects from skin disorders, checks muscle twisting |
| **Vitamin C** | Orange, lemon, citrus fruits, aamla, guava, green vegetables. | Prevents infection from cold, throat and chest infection. Helps in early repair of injuries. |
| **Vitamin D** | Milk fat, fish, liver, egg, cheese, butter, edible oils. | Helps our body to use calcium for bones and teeth. |
| **Vitamin E** | Wheat-germ,sunflower,olive and safflower oil,nuts. | Prevents early ageing,maintains freshness of the skin,helps faster healing of damaged tissues. |
| **Vitamin K** | Green leafy vegetables,leaves of alfalfa are rich in Vit K. | Prevents excessive bleeding and helps in clotting of blood. |

**Vitamin D is also known as 'sunshine vitamin'. Sun rays react with the oils of the skin to produce vitamin D within the body in natural way.**

## Exercise:

**Q.1 What are nutrients? List the component of food.**

**Ans.** The components of food which help our body in growth, maintaining life and to fulfill different needs of the body are called nutrients .

Carbohydrates, fats, proteins, vitamins and minerals are the five primary nutrients. Apart from that roughage(fibres) and water are also essential part of our food.

**Q.2 What are protective nutrients?**

**Ans.**Vitamins & minerals are protective nutrients which activate growth and resistance to various diseases.

**Q.3 How are fats different from oils?**

**Ans.** Fats are saturated fats which are normally solid at room temperature whereas Oils are unsaturated fats which are normally liquid at room temperature.

**Q.4 Why does a baby need more proteins in addition to carbohydrates?**

**Ans.** A baby needs more proteins in addition to the carbohydrates because carbohydrates help a baby with energy whereas protein helps the formation of new tissues in child's body to help growth.

**Q.5 Name some common sources of starch. Give the test for testing the presence of starch in a food ?**

**Ans.** Starch is present in cereals like rice, wheat, barley, oat, maize, millets and vegetables like potatoes, sweet potatoes, trapa(singhara).

**Test for starch** - Take a small quantity of food item like potato or boiled rice. Put 2-3 drops of dilute iodine solution on it. The potato turns blue or black at the point where dilute iodine solution is dropped. It indicates the presence of starch in potato.

**Q.6 Why do we need replenishment of vitamin B and C from time to time ?**

**Ans.** We need replenishment of vitamin B and C from time to time because vitamin B and C are water soluble vitamins which do not stored in the body and are lost through excretion(Sweat and Urine).

**Q.7 Name any two functions of proteins in our body.**

**Ans.** Proteins help in growth and repair of the injured or damaged parts of the body.

**Q.8 Why do old people need less of carbohydrate and more of protein rich diet ?**

**Ans.** Old people need more of protein rich diet as compare to carbohydrate to maintain muscle strength, bones and other essential physiological functions.

**Note:-**

- Students are requested to note down the above question and answers in their science notebook.
- Children do have fun in learning and indulging yourself in below activity.

## ACTIVITY

**Aim**: To test the presence of fat in a food.

**Material required:** Food item like ground nut, coconut, a piece of paper.

**Procedure:**

- Take a small quantity of the food item.
- Wrap it in a piece of paper and crush it.
- Now, straighten the paper and observe it carefully.

**Observations:** You will see an oily patch on the paper which makes the paper translucent.

**Conclusion:** An oily patch on paper shows the presence of fat or oil in food.

## Test your learning outcome

**Q.1** What are energy giving / yielding food? Give two examples.

**Q.2** What are body- building food? Give some examples.

**Q.3** Which vitamin supplements helps in the absorption of calcium in the body from the blood?
**Q.4** Which is the natural source of vitamin D?
**Q.5** Give the importance of vitamin A and vitamin C in our body.

## Answer key of previous notes (Part II of Chapter 1)

1.Honeybees visit flowers and collect sweet sugary nectar from the base of the flowers and store it in their honeycomb.

2.Hen

3.(a) Rearing birds for eggs and meat is called poultry.
(b) Rearing fish is called Pisciculture.
(c) Rearing honeybees is called apiculture.

4.(a) Meat, milk
(b) Eggs, meat
(c) Honey
(d) Milk

5. Button mushroom and morchella

6.

| Herbivores | Carnivores | Omnivores |
|---|---|---|
| Animals which eat only plants and plant products.<br>For eg. Cow, horse, sheep. | Animals which eat flesh of other animals.<br>For eg. Lion, tiger, wolf | Animals which eat both plants and animals.<br>For eg. Man, dog, bear. |

7.(a) Nectar is sweet juice that bees collects from flower to make honey.
(b) When the seeds begin to grow or germinate by developing roots are called sprouts.

8. Animals like jackals, hyenas, vultures that feeds dead bodies of other animals are called scavengers. They keep the environment free from decaying flesh. In this way they keep the environment clean.

9. Yes, milk is a complete food as it is rich in proteins and calcium. But it is deficient in fibres and vitamin C.

10. (ii) Omnivores (iii) Carnivores (iv) Omnivores

11. (i) Root (ii) Leaf (iii) Seed (iv) Shoot

12. (ii) Pea is a pulse, others are cereals.
(iii) Potato is a modified stem, others are modified roots.
(iv) Egg is a animal product, others are plant products.
(v) Rabbit is herbivore, others are carnivores.

**Note:-** Students are requested to note down all question/answers of chapter- 1,sources of food(part-1 & part-2) in their science notebook.