

Class 6 Biology Component of Food

Introduction

Introduction

- What we eat in our day to day life to provide energy to our body is called food.
- People in different parts of our country eat different kind of food.
- For example: In northern part of India **chapattis, dal**, vegetables like brinjal, lady's finger, potato, etc. were eaten. Whereas in southern part of India rice, **sambhar, uttapam**, etc. were eaten, this is due to the availability of food in that particular area.
- Other items like fermented food for example: curd, **idli, dosa** and dish of meat, chicken, fish are also eaten.



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Components of food

Components of food

- Whatever food we eat is made up of more than one component taken from plants or animals.
- Food should contain such type of component which provides nourishment to our body and should be responsible for the growth and development of our body. These components are called **nutrients**.
- Energy giving nutrient: **Carbohydrate and fat**

Body building nutrient: **Protein**

Nutrient protect body from disease: **Vitamins**

Nutrient needed for growth and maintenance: **Minerals**



Carbohydrates containing food items



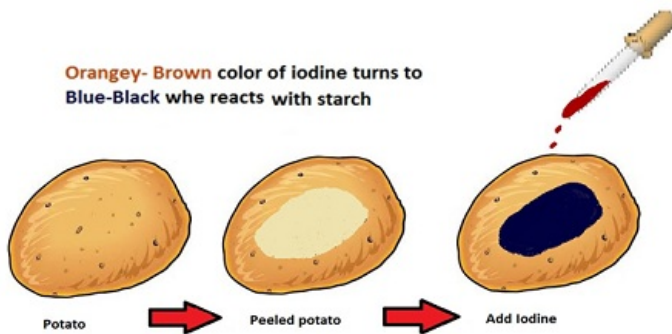
Protein containing food items

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Carbohydrates

Carbohydrates

- Carbohydrate is the main component of food. It provides us energy in the form of glucose.
- Carbohydrates found in starch and sugar containing food items. For example: potato, rice, bread, sugary drinks like fruit juices, wheat etc.
- **Test of starch:** To test the carbohydrate in food we need the diluted iodine solution.
- Take raw peeled potato slice and add 2-3 drops of dilute iodine solution.
- You will find the color changes from orange to blue-black this shows the presence of starch.



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Fat

Fat

- Fat also provide energy to our body more than carbohydrate.
- Fat may also be hazardous to our health. It can cause high cholesterol and heart diseases.
- **Ghee**, cheese, butter, oil, cream are some food items containing fat.
- **Test of Fat** To test the presence of fat, take a piece of butter on a paper rub it at the center.
- You will observe the oily patch on the paper. This oily patch is fat.



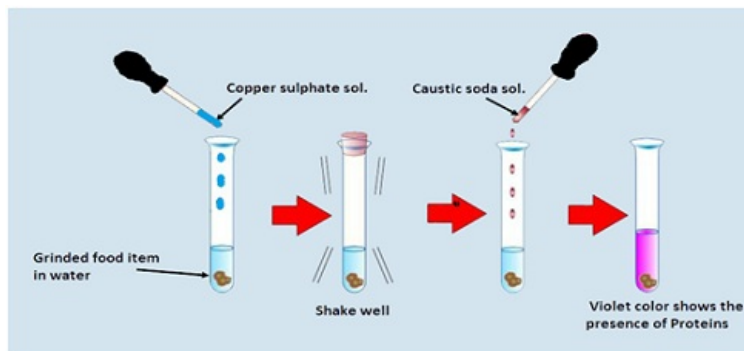
Fat containing food items

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Protein

Protein

- Our body use to build and repair tissues for which body needs proteins.
- Nails, hairs, skin, muscles and blood all are made up of proteins.
- Egg, meat, fish, oats, ***dal***, almond, milk, yogurt are some rich source of protein.
- **Test of Protein**: To test protein in food we need solution of copper sulphate and caustic soda.
- Grind the food sample finely (for example: almonds). Put it in clean test tube and add 10 drops of water.
- Using a dropper add 2 drops of copper sulphate solution. Shake it well.
- Then add 10 drops of caustic soda solution. Shake it well.
- Violet color indicates the presence of proteins.



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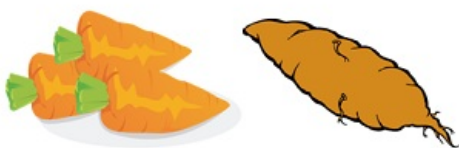
Vitamins

Vitamins

Vitamins are needed for growth and development. It also provides immunity (body's defense mechanism to fight against diseases) to our body

<u>Vitamins</u>	<u>Benefits</u>	<u>Rich source</u>
Vitamin A	Good for our skin, hair and eyes	carrot, sweet potato
Vitamin C	Good for immunity	Found in citrus fruits like lemon, orange, tomato
Vitamin D	Helps our body to use calcium for bones and teeth	<ul style="list-style-type: none">· Our body makes Vit. D in the presence of sunlight of its own.· We need calcium from external source.
Vitamin E	Good for our vision	Found in almonds, peanuts
Vitamin K	Good for our blood	Found in spinach, broccoli

- There are group of vitamin called Vitamin B- complex.
- Containing group of 8 Vitamins Vit.B1, Vit.B2, Vit.B3, Vit.B5, Vit.B6, Vit.B7, Vit. B9 and Vit.B12.
- The B vitamins play an important role in cell metabolism.



Vitamin A rich sources



Vitamin C rich sources



Vitamin D rich source

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Minerals

Minerals

- Minerals were needed in traces amount, but is essential component as well.
- Minerals are necessary for building proper growth and maintenance of our body.
- Calcium, magnesium, phosphorus, sodium, iron, zinc are some essential minerals for our body.



Rich source of Calcium milk and egg



Rich source of Iron Rich source of Phosphorus

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Balanced Diet

Balanced Diet

- The food that a person eats in a day is called **diet**.
- **Balanced diet** is the diet which contains all kinds of essential nutrients in right amount needed for proper growth and maintenance of our body. Also our diet should contain roughage (raw uncooked vegetables) and water.
- Balanced diet depends on the age and the type of physical work we do.
- For example: an athlete would consume more amount of carbohydrate to gain more energy, an old age person would consume food which can be easily digestible.
- Most of the vegetables and fruits skin contain good amount of vitamins and minerals.
- Continuous washing, boiling or overcooking vegetables would loss many nutrients present in them.



Picture showing Food we should eat for balanced diet



Picture showing Food we should eat for balanced diet

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Obesity

Obesity

- Fat contains more amount of energy than carbohydrates. But continuous intake of fat would cause deposition of fat in our body.
- **Obesity** is an excess accumulation of fat in our body.
- Most of the junk food and oily food contains lots of fats. One should utilize the fat in the form of physical energy to balance the body.



Eating junk food leads to obesity

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Deficiency Diseases

Deficiency Diseases

- Disease caused due to deficiency of particular nutrients or minerals in our diet for a long period of time is called **deficiency diseases**.
- This deficiency could be of one or more nutrients. This would affect skin, hair, face, eyes, bones, teeth, growth of particular person.
- This deficiency can be overcome by taking balanced diet. If a person is deficient of both carbohydrate and protein this would lead to make that person very thin and weak.

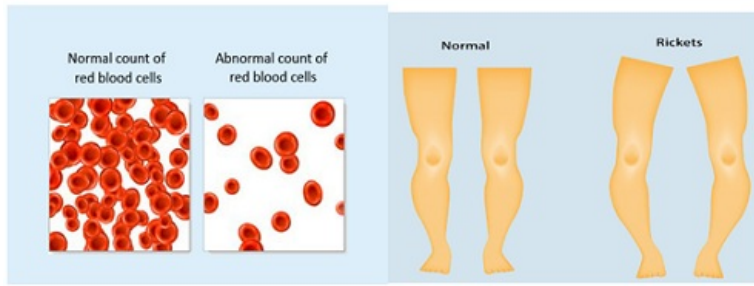
Deficiency of vitamins is shown in table

Vitamins	Disease	Symptoms
Vitamin A	Night blindness	Poor vision or no vision at night
Vitamin B1	Beri-Beri	Nervousness, paralysis, weak muscles
Vitamin C	Scurvy	Bleeding gums, late healing of wound
Vitamin D	Rickets	Weak bones, decaying teeth
Vitamin K	hemorrhage	Clotting of blood affected

Deficiency of minerals shown in table

Minerals	Disease	Symptoms
Calcium /phosphorus	Bone and tooth decay	Weak bone, tooth decay
Iodine	Goiter	Glands in the neck get swollen
Iron	Anaemia	Decrease in the production of RBC

causes weakness.



Anemic RBC due to deficiency of iron

Deformed legs due to deficiency of Vit.D