

1. FOOD COMPONENTS

In the previous class we have learnt that we eat many kinds of foods like biryani, pulihora, idly, chapathi, dal etc. and you also learnt how to cook some kinds of food making them tasty and palatable by adding oil,

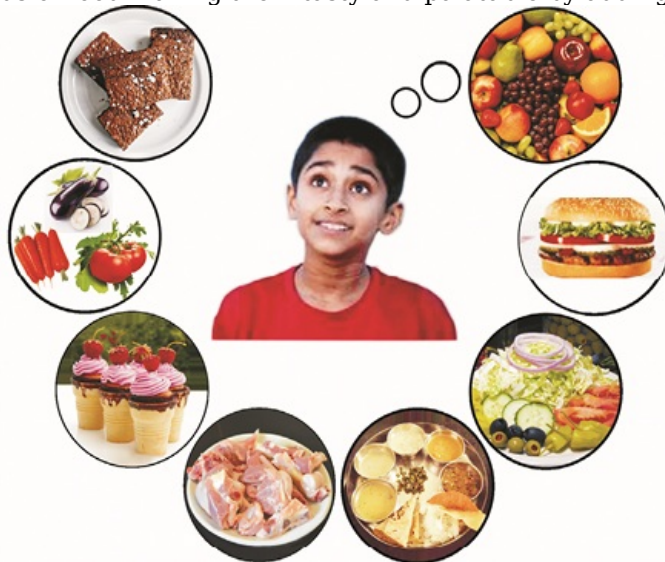


Fig. 1

sugandha dravyalu (condiments) etc.

Every one have their own favourite food.

What is your favourite food/dish? Why do you like it?

Is only favourite food sufficient for you? Why?

What food do you eat every day?

Think ,why do you eat it?

Let us do - 1 :

We eat different types of food items. Make a group with five or six students and make a list of some day-to-day activities and food items we eat; display your group report. Discuss in groups with your teacher about the relationship between eating food and performing activities.

Food supplies the energy we need to do many tasks in our day to day activities.

- Do we need energy when we sleep?

Why / why not?

Do you know that even while sleeping we breathe and circulation of blood in our body goes on; so we need energy while sleeping. Can you add some more activities performed by our body during sleep?

Read the following and discuss with your friends.

1. Suppose you don't get food for lunch how do you feel?
2. If you don't get anything for more than a day how will you feel?
3. If you don't get food for many days what will happen to you?
4. Why should we take food? What are the components in it ?

Let us find out what components are present in our food.

Let us do - 2: Listing out food components

Observe the given packet (Fig. 2) and list out the food components present in it.

In Table 1, put a tick mark if you find the listed food components present in food items

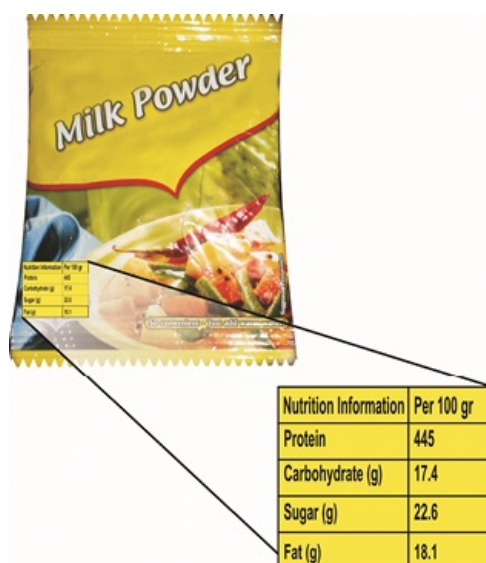
Collect some other food packets as well like those of chips, milk, juice, salted dal, etc.

Table 1 : Food Items and

Components

Food Items	Carbohydrates	Protein	Fat	Vitamins & Minerals	Other if any
Milk powder					

Fig. 2



1. What are the components found in biscuits?
2. What components are most common in your list?
3. Do you find any vitamins and minerals in them? What are they?
4. Where do you write salt and sugar? Why?
5. Are there any food items with similar components?

What are the essential components of food?

Our food consists of Carbohydrates, Proteins, Fats, Vitamins and Minerals. Besides these, water and fibres are also present. The components present in food substances can be tested easily through simple experiments.

Let us do - 3: Confirmation of presence of food components

Collect different types of food materials like milk, a potato, little quantity of oil / ghee. Test them according to the instructions given below. For this you will need test tubes, stand, plate and dropper. You would also need some chemicals as given in each section of testing. Take a sample of each food item in a test tube or plate. Prepare the chemicals needed. Test the samples with them. Note down your observations in your notebook

Experiment - 1: Test for Starch:

Preparation of dilute iodine solution

Take a test tube or a cup and add few drops of Iodine solution to it. Then dilute it with water till it becomes light yellow/brown.

Take a sample of food item in the test tube. Add a few drops of dilute Iodine solution to the sample.

Observe the change in colour. What do you find?

If the substance turns dark-blue or black it contains starch



Experiment - 2: Test for fats

Take a small quantity of each sample. Rub it gently on a piece of paper. If the paper turns translucent the substance contains fats.



Recall your past experience when you have eaten vada or any other food item on a paper plate; you might have noticed the paper plate turning translucent.

Why did the paper plate turn translucent ?

Experiment - 3: Test for Proteins

Preparation of 2% copper sulphate solution and 10% sodium hydroxide solution:

To make 2% copper sulphate solution dissolve 2 gms of copper sulphate in 100 ml of water.

To make 10% of Sodium hydroxide solution dissolve 10 gms of sodium hydroxide in 100 ml of water.

One gram of sodium hydroxide equal to 6 pellets of sodium hydroxide.



Table 2: Testing of food items for Carbohydrates, Proteins,

Fats

S.No.	FOOD	STARCH Present / Absent	PROTEINS Present / Absent	FATS Present / Absent
1	RICE			
2	POTATO			
3	MILK			
4	CURD			
5	EGG			

If the substance you wish to test is a solid, grind it into powder or paste. Take a little of it in the test tube and add 10 drops of water to the powder and stir well.

Take 10 drops of this solution in a clean test tube and 2 drops of copper sulphate solution and 10 drops of sodium hydroxide solution to the test tube and shake well. Change of colour to violet or purple confirms presence of protein.

The above tests show the presence of components of food which are usually present in larger amounts as compared to others. All types of food that we eat contain all the above mentioned food components. The quantity of each component varies from type to type.

In rice carbohydrates are more whereas in oil fats are present in more quantity.

Let us do - 4: Testing of food items

Test different food items as given in Table 2. You may add your own examples. Find out the different components in them and record the information on the basis of your observations in table 2.

You can enrich the table by adding more food substances.

Analyse the data in the table and think about the components presents in the food items.

Discuss with your friends and answer the following questions.

1. Which foods show the presence of starch?

.....

2. What nutrients are present in milk?

.....

3. Which component of food could you identify in potatoes?

.....
4. Which food item contains more fat?

.....
5. Which food items contain more protein?

.....
Generally every food item contains all the components of food. But some components may be more while some may be less.

We require different quantities of Carbohydrates, Proteins and Fats according to age and need of individuals. Growing children and adolescents need more protein- containing food like milk, meat, pulses etc. We also need minute quantities of some other components called Vitamins and Minerals to keep us healthy.

Think! Find out from your classmates whether all of their family members take sufficient food. If not, why? Find reasons and solutions.

ROUGHAGES OR DIETARY FIBRES

There are some components of food that are necessary for our body called roughages or dietary fibres.

Let us do - 5: Roughages in some food items.

Collect some vegetables like ribbed gourd, bunch beans, lady's finger or some boiled sweet potato etc. break them or crush them into pieces and observe.

- Do you find some fine strands or thread like structures?
- What are these strands called?

Roughages are a kind of carbohydrates that our body fails to digest. They help in free bowel movement in the digestive tract and prevent constipation.

Discuss with your teacher how dietary fibres help in preventing constipation.

SOURCES OF ROUGHAGES

Bran, shredded wheat, cereals, fruits and vegetables, sweet and plain potato, peas and berries, pumpkins, palak, apples, banana, papaya and many kinds of beans are the sources of roughages. We must take care to include sufficient fibre foods in our daily diet.



Generally we have a habit of eating some fruits without peels. We eat banana without peel but fruits like apples, grapes etc. are eaten along with peels. Most of the vegetable are also used along with peels, sometimes we make some special dishes like chutneys etc. with peels. So don't peel or discard outer layers of fruits or vegetables. They are rich in nutrients. Peel contains



fibre which helps in digestion. But now-a- days farmers use many pesticides in the fields They are very dangerous for our health so we must wash fruits and vegetables with salt water thoroughly. Then only it becomes safe to eat them along with peels.

WATER:

Water is also an essential component needed by our body. We should drink sufficient water. Do you know we get water from fruits and vegetables also? Most of the fruits and vegetables contain water.



Fig 8

Observe the above fruits and vegetables and cut them. Can you find water in them? Most vegetables like potatoes, beans, kheera, tomatoes, gourds and fruits like apples, papaya and melons etc. contain water.

Why does our body need water?

Let us do - 5: To know the use of water

Take a piece of sponge and try to move it in a pipe. It moves with some difficulty, Remove the sponge from the pipe, dip it in water and try to move it again in the pipe. It moves freely or smoothly (Fig 9). Why does it move freely? Water is food and it also helps the food to move easily in the digestive tract. Water helps in many other processes in our body as well. Hence, we must drink plenty of water.



BALANCED DIET

Let us do - 6

Break fast Lunch Dinner

List the food items eaten by you yesterday from break-fast to dinner. Does your diet contain all the necessary components of food in it? Think and discuss with your friends.

Let us do - 7

Look at the food 'THALI' with many food items and list out the food items and food components in it.



Food Items

Food Components

Rice

Carbohydrates

You need not eat all items as shown in the "THALI" rather you should ensure that your food contains all food components everyday in adequate quantity. For example, a diet containing food items having more of carbohydrates and protein along with a little fat, vitamins and minerals makes a balanced diet.

Make your diet a balanced one

Taking green salads and vegetables everyday.

Taking foods like cereals, pulses, milk etc. adequately

Taking a bit of fat (Oil, Ghee, Butter etc.)

Don't forget to supplement your daily diet with green salads and vegetables.

Do you know? Dry fruits like dates, plums, raisins, Cashew nuts, pistachios, etc. also keep us healthy



Balanced diet is cheap indeed:

Scientists have found out that a balanced diet need not necessarily be costly. Everyone can afford it, even the poor. If a person eats dal, rice, rotis, green vegetables, little oil and jaggery all the food requirements of the body



are fulfilled. Just balancing our diet with different kinds of foods is not enough. It should be cooked in a proper way.

You know many nutrients are lost by over cooking, re-heating many times, washing the vegetables after cutting them into small pieces.

Think! Is your mid-day meal a balanced one? Write your observations and display them in bulletin board.

Do you know which foods are to be eaten moderately, adequately, plenty and sparingly?

- Foods like cereals, pulses, milk etc. should be taken adequately.
- Fruit, leafy vegetables and other vegetables should be used in plenty.
- Cooking oils and animal foods should be used moderately.
- Vanaspathi, Ghee, Butter, Cheese must be used sparingly.

Avoid junk foods:

If you are eating only pizzas and sandwiches daily, what will happen? Your body is being deprived of the other food substances. Junk food causes damages to our digestive system. It is better to avoid eating junk food.

Discuss in groups or collect information about junk food. In what way are they harmful to us?



Food habits of the people depends upon climatic conditions and cultural practices of the particular place. We eat rice in large quantities but people living in north India eat

chapathies as a daily food. Why? Because wheat is grown widely in that region. The way of cooking and eating food also reflects the cultural practices of people.

History of food and Nutrition:

Until about 170 years ago there was little scientific knowledge in the West about nutrition. The founder of modern science of nutrition was Frenchman named Lavoisier (1743 to 1793) whose



contribution paved new ways to nutrition research. In the year 1752 James Lind discovered “Scurvy” which could be cured or prevented by eating fresh fruits and vegetables. It was known that diseases could be cured by eating certain kinds of foods. In 19th century it was known that the body obtains three substances namely proteins, fats and carbohydrates from the food.

KEY WORDS:

Carbohydrates, Fibres, Balanced diet, Proteins, Fats, Constipation

What have we learnt?

- Food contains some components Carbohydrates, Proteins, Fats, Vitamins and Minerals
- Fibres are also a component of food that are present in different kinds of fruits and vegetables.
- All food items contain all the components of food. The amount of each component varies from one type of food to another.
- Roughages or Dietary fibres clean our food canal and prevent constipation.
- We must drink enough water so that our body functions properly.
- The food that contains all the nutrients like Carbohydrates, Proteins, Fats, Vitamins and Minerals in a proper proportions is called Balanced Diet.
- Every one requires a Balanced Diet.

Improve your learning:

1. Make a list of food items eaten during lunch by you. Try to mention the components in each food item.
2. Manjula eats only bread and omlette daily. Do you think it is a balanced diet? Why? Why not?
3. Make a list of food items that contain all components of food.
4. Who am I?
 - a. I am a component of food that makes paper translucent.
 - b. Put a drop of me on a cut potato. It turns dark blue. Who am I?

5. Explain what will happen if we don't include roughage in our food?
6. Test the given food items and record the type of component that are present in them.
(Ground nut, Cooked dal, Pulusu)
7. Draw some food items of your diet and explain why you like them.
8. If you were invited to a party with many food items in the menu like Rice, Roti, Puri, Idly, Dosa, Samosa, Dal, Green salad, Vegetable curry, Fruit chat, Chicken curry, Eggs, Gulab Jamun
 - a. What food items would come on to your plate to make your diet a balanced one?
 - b. What food items would you take plenty, adequately?
9. How is water useful to our body?
10. Fill in the blanks.
 - a. If our food is not balanced with proper nutrients we may _____ .
 - b. Fibres in our diet prevent _____ .
 - c. Our daily diet should include plenty of _____ .
 - d. Oils and fats give us _____ .
11. Match the following and give the reasons.
 1. Fibre () A) micro-nutrients.
 2. Protein () B) energy giving.
 3. Vitamins & minerals () C) body building.
 4. Carbohydrates () D) bulk forming
12. Prepare a balanced diet chart with the help of your group and exhibit it in your class room science fair
13. Prepare 'kichidi' with your mother's help using all kinds of available vegetables, dals, nuts etc. Write a note on the process of making kichidi.
14. Observe whether your mother cooks on a low or high flame. Discuss with your mother and find out the reason.