

# Science

## Standard Six

### Term I

### Volume 2

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## Science is.....



Why does the sun appear only in the day time? Why do the stars glow only at night? Why do plants grow towards the sunlight even when they are kept in a room?

The questions like **What? Why? and How?** can readily be given answers with the help of Science.

The things we use in our day to day life, for example, electrical equipments, various food items and sophisticated life style are gifts from the source of science.

**Physics** deals with our galaxy, earth and other planets, stars and their dynamic motions, light, sound and other related sources of science.

**Chemistry** deals with metals, non-metals, melting substances, odour and taste (salt or sweet) of materials used in our day to day life.

In the universe, the living organisms exist only in the earth. The study of herbs, shrubs, climbers, trees, domestic animals, wild animals, aquatic organisms, microbes and other life forms around us is called **Biology**.

The branch of science that deals with herbs, shrubs, climbers and trees is called **Botany**. The study of animals is known as **Zoology**.

# The World of Plants

1



Paddy field

Our ancestors were nomads, hunting and wandering for food. Then, after several thousands of years, they learned to cultivate the food crops on their own.

Nowadays, many food crops like paddy, sugarcane, millet, coconut and vegetables are cultivated in villages for food.

What are the things we will buy if we visit a vegetable shop with our parents? Those will be a part of a plant, either a leaf or an unripe fruit.



sugarcane field



vegetable farm



millet field



coconut grove

# Unit - 1

Now shall we list out the food items derived from the different parts of the plant.



Food item	Material required	Plant part
Sambar	Thoor dhal, Chilli, drumstick, Curry leaf, Turmeric powder	Seed unripe fruit, Leaf, Stem
Pepper rasam	_____	_____
Brinjal fry	_____	_____

In addition to vegetables, cereals, pulses, fruits and oils, spices are also obtained from plants. Food plants are used for food. Food based industries depend on plants. Plants are useful to us in many ways. It is used in the preparation of food items such as chips, pickle, dhal powder, jam etc.

### Medicinal plants:

Plants are used not only as food, but also as medicines to cure our diseases. Most of the medicines which we use in our daily life are produced from plant extracts.

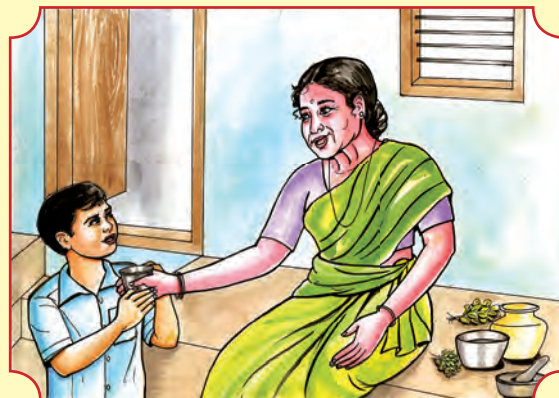
50,000 to 75,000 tonnes mango pulp is been exported to foreign countries from Krishnagiri district of Tamilnadu every year .This yields good income for the farmers. It also increases the income of the nation.



Plants that have medicinal properties are known as herbal plants.

Now a days, plant - based medicines are preferred by many people. World wide researches are

Mani visited his grandma's house during holidays. There he bathed with his grandpa in the canal. He was affected with common cold the next day. He thought that his grandpa would take him to the doctor. Instead, his grandma gave him herbal medicine for three days and to his surprise, he was cured completely.



- What herbal medicine would grandma have given to Mani? Find out from your grandma or elders at home and put it in writing.
- Ask your elders and write down the simple medicinal practices done at home to cure stomachache, headache, and fever.

done to find out the medicinal value of plants.

In our country, plants are being used from ancient days to cure several diseases.

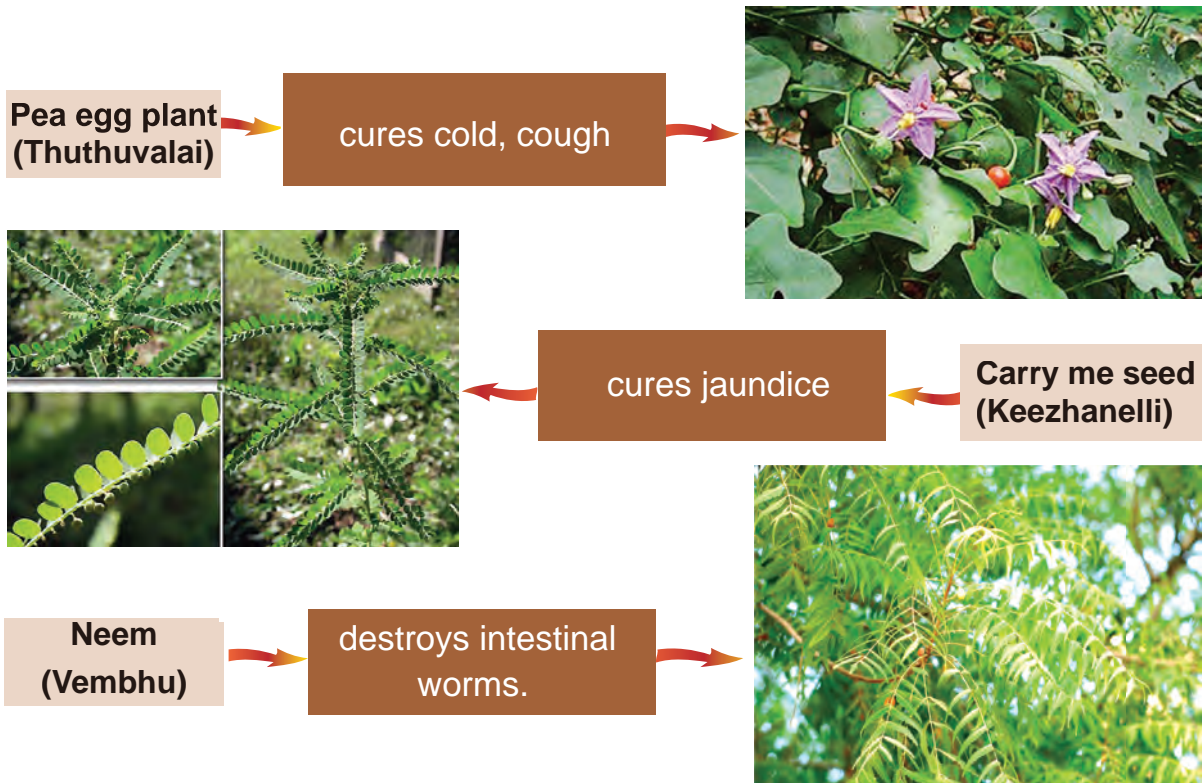
The herbal plants grow naturally in forests, mountains and hills and some are found in the road sides.

Let us learn some of the medicinal values of herbal plants.



Our ancestors said that if we consume plants having medicinal values, it will help us to be healthy and strong without diseases. So it was rightly said by our ancestors “Food is medicine”.

## Uses of Herbal plants



# Unit - 1

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cures mouth ulcer,  
regulates body  
temperature

**Gooseberry  
(Nelli)**

**Holy basil  
(Thulasi)**

cures cold, cough,  
fever



increases sweating,  
cures fever

**Country  
borage  
(Omavalli)**

**Sweet flag  
(Vasambu)**

cures abdominal  
diseases



used as germicide  
and cosmetic

**Turmeric  
(Manjal)**

**Veldt grape  
(Pirandai)**

increases appetite,  
cures digestive  
problem



cures  
digestive disorders

**Ginger  
(Inji)**

**Pepper  
(Milagu)**

cures  
throat infection



Collect the herbs in and around in your area and organise a herbal exhibition in your class room. Discuss with your peer students about the name of the herbs, their medicinal value and part of the plants used as medicines.



We grow plants not only for food and medicine, but also for ornamentation, as construction materials and for other purposes.

### Flowers and cosmetics

We all love beautiful flowers such as rose, lily, jasmine, etc. Flowers play a key role in the preparation of cosmetics like bathing soap, talcum powder, deodorant and perfumes.



### SPICES

Many a time while cooking we can smell a pleasant smell. Have you ever wondered the reason for this smell? Spices which are added while cooking are the reason for this good smell.

Spices are got from many parts of plants. Spices give good smell and colour to food.

Spices increase the amount of food eaten and their digestion rate. Many parts of plants such as leaves,

stems and flowers are used as spices.



Discuss with your Parents or elders and fill up the following.

What are the ingredients needed to prepare dry ginger coffee?

### Method of preparation

### Uses

Some spices are also used as medicines. Ginger, mint and sesame are used as medicines for common cold, fever and stomach ache.

Turmeric and clove are used as antibiotics and antiseptics.



Kerala is known as the Spice Garden of India

Parts of the plant used as spices

Seed



Fenugreek (Vendayam)



Fennel (Sombu)



Mustard (kadugu)

Underground stem



Dry ginger (Sukku) / Ginger



Turmeric (Manjal)

Unripened fruit



Cardamom (Elachi)

Fruit



Pepper (Milagu)

Bark



Cinnamon (Lavangam)

Leaves



Mint (pudina)

Flower bud



Clove (Krambu)

Underground stem

Ginger and turmeric are the stem of the plant found under the ground. This does the function of food storage.



The dress we wear, the jute and gunny bag we use are the products of plants.

Our cotton dress is the gift from cotton plants. Jute obtained from the plant Hemp is used to make gunny bags. Coir ropes are produced from the coconut fibre. Fibres from the hemp plant are used to make gunny bags. Apart from this, fibre plants are also used in making pillow, bed, mat and mattress.

Long, thin, strong strand obtained from plants is known as fibre.

There are many kinds of fibres which are used to make cloth, net, and paper. Fibres are classified on the source from which they are obtained.

**Stem fibres**

Plantain fibre and jute are obtained from stem of their plants.



Jute

**Let us know:**

Now a days hemp is cultivated not only for jute, but also for some other purposes. It is used in the preparation of bio-plastics since it has 85% of cellulose. Bio-plastics are bio-degradable.

**Leaf fibres**

Fibres are obtained from the leaves of Aloe vera and pineapple.



Aloe vera

pineapple

These are called as leaf fibres.

**External fibres**

Fibres obtained from the outer region of the seed are known as external fibres.

eg. Cotton, Coconut, Silk cotton.

**Plants in construction**

Parts of the plant used for building purposes are known as wood.

The dark inner region of the stem is called **heartwood** and the outer

**activity 3**

Write any ten products made by using fibres.



Activity 4



List the furniture in your house and find out from your elders from which tree these are made.

S.No.	Name of the item	Name of the tree
1.		
2.		
3.		
4.		
5.		



**Teak:** Construction material, furniture



**Jack fruit**  
Construction material, Fruits



**Eucalyptus tree**  
Oil, paper



**Mango tree**  
construction materials, fruits

region is called as **sapwood**.

Sapwood helps to conduct water. heartwood gives strength and rigidity to the plant. It is stronger than sapwood. Mostly Heartwood is not infected by fungus, termite, borers. It is hard and resistant to fungus due to the presence of gum, latex, resin and oil. It is more lustrous and is used for building purposes. Sapwood is infected by fungus and termites.

Many trees grow in and around our place. Knowing about their uses, will be more useful for our life.

**GIFT OF NATURE - PLANTS**

Herbs, shrubs and trees are inevitable for our life. Plants provide us the basic needs such as food, clothing and shelter. Forests are necessary for getting rainfall. Trees purify the air. So, we understand that it is harmful if we destroy trees!

Let us not stop with just learning about it, but get involved in constructive activities like

- ☛ creating gardens in the backyard and
- ☛ planting trees in the school campus.



**Silk cotton tree**  
Match stick,  
match box,  
toys, bed, pillow



**Coconut tree**  
Thatching  
construction, tender  
coconut, coconut



**Mulberry tree**  
Tennis racket and  
Hockey stick



**Pine tree**  
Railway sleepers,  
ship building

Extended activities

1. Do you know that a small garden can be created near the window of your kitchen? Fill the bucket with soil and sow seeds of medicinal plants, greens, coriander and tomato. Water them regularly. Thus, a small garden can be created in your house. Now share your experience in the class room.

2. In countries like Japan, Russia and Cuba, vegetables are cultivated on the open terrace. Like this, you can also get benefitted by forming garden on the open terrace of your school or house and cultivate pumpkin, snake gourd, tomato and bitter gourd.



**Willow tree:** Sports  
materials, Cricket bat



**Babul bark tree**  
(Karuvelam tree) Parts  
of bullock cart






**Sandal tree :**  
Sandal, craft, furniture

# Unit - 1

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Discuss in groups and collect information about herbs, shrubs, and trees found in your surroundings.



Plants	Name	Uses
		
		
		

## Facts file

1. Thickest African tree found in Zimbabwe is **Boabab tree**.
2. Orange trees yield fruits for about 400 years.
3. **Rafflesia** produces the largest flowers. The diameter of the flower is one metre.
4. **Red wood tree** doesn't easily catch fire
5. From a watermelan, 6,00,000 watermelon plants can be produced and from them watermelon weighing 180 tonne can be obtained.



Rafflesia



Boabob tree



Redwood tree

I.Fill in :

**Fruit**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Leaf**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Seed**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Food Products**

**Root**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Flower**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Vegetable**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Stem**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Unit - 1

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2. Rearrange the letters and find out the name of the plant.

(Eg: Ricturme-Turmeric)

1. finlagerdy's - \_\_\_\_\_
2. reeegosbry - \_\_\_\_\_
3. mutayhcrsnhem - \_\_\_\_\_
4. irragonefut - \_\_\_\_\_
5. werflouns - \_\_\_\_\_

3. Names of some useful plants are hidden in the following checker. Find out atleast ten and write their uses in one or two words.

P	E	P	P	E	R	O	S	E	P	C	A	C	T	U	S
T	Q	M	U	L	B	E	R	R	Y	R	T	H	V	G	U
S	N	A	K	E	G	O	U	R	D	L	O	I	F	S	T
K	O	N	I	O	N	W	Z	N	O	K	M	P	I	N	E
E	U	C	A	L	Y	P	T	U	S	J	A	E	I	W	B
N	A	J	C	D	G	A	R	L	I	C	T	G	U	V	M
E	X	O	K	E	B	F	H	C	A	L	O	D	T	Q	L
E	N	P	B	R	I	N	J	A	L	P	M	A	N	G	O
M	B	K	L	M	N	O	B	A	N	A	N	A	Q	R	W
R	Z	M	A	Z	C	O	C	O	N	U	T	S	X	Y	R

4. Some places are very popular for their products, like Tanjore for Paddy, Madurai for Jasmine, and Kumbakonam for Betel leaves. Refer the library and write such famous places known for their products.

### Evaluation

5. Choose the correct answer

1. Plants with medicinal value are called
  - a) pulses
  - b) scented plants
  - c) medicinal plants
  - d) barks

2. Of the following, which is the seed part of the plant?
  - a) thoor dhal                      b) veldt grape
  - c) banana                          d) turmeric
  
3. Select the food-related industry from the following
  - a) coir making                      b) gardening
  - c) cotton cultivation d) pickle-making
  
4. Name the unripe fruit that we have to consume for blood purification.
  - a) gooseberry                      b) neem
  - c) bottle gourd                      d) keezhanelli
  
5. Name the tree used in paper industry.
  - a) Teak                                  b) Eucalyptus
  - c) Coconut tree                      d) Sandal wood tree

6. Match the following:

Trees	Uses
Eucalyptus	Parts of bullock cart
Silk cotton	Railway sleepers
Coconut	Tennis racket and Hockey stick
Mulberry	Thatching, construction
Pine	Match box
Babul bark tree	Oil, papers

7. State whether the following sentences are true or false. Correct the statement.

1. Purple fruited pea egg plant is used as medicine for jaundice.
2. Ginger is the root of the plant.
3. Veldt grape is a medicinal plant.
4. Clove is the Seed of the plant.
5. Silk cotton tree is used to make match box.

### 8. Answer the following:

1. Where do the scent / odour in bathing soap and perfume come from?
2. Write about the plants and parts of the plant from which coir ropes, and gunny bags are made.
3. Where do medicinal plants grow?
4. Name the plants that yield cooking oil.
5. Write down the benefits of adding spices in food.
6. Differentiate between heartwood and sapwood.

### 9. Think and answer.

1. How will you explain to a foreign tourist about any five medicinal plants of our country?
2. We cut and use the trees, but at the same time it is instructed "Trees should not be cut off". How to find solution to this contradiction?
3. Only heartwood is used to make furniture. Is it correct? Give reason?



## FURTHER REFERENCE



### Websites:

- <http://en.wikipedia.org/wiki/food>
- <http://www.moomilk.com/tour.htm>



# Food Habits

## 2

We know about the cartoon hero Popeye. Don't we? In this story, Popeye, the sailor is thin and weak. But his opponent is obese and strong. His name is Brutus. Popeye is often beaten by him.

Immediately, Popeye consumes spinach. It gives him immense strength and that's all, his opponent Brutus is defeated.



**I'm Popeye;  
you can watch me  
on Television cartoons,  
Video games, Advertisements  
and Films.**

This cartoon story illustrates the importance of greens like spinach. It is true, that the food we consume must be nutritious. Obese person may

appear stronger. But, it is not really healthy so.

It is not advisable to eat noodles. Noodles we eat are different from the noodles eaten by Chinese. They consume home-made noodles.

But we consume industry-made artificially flavoured noodles.

Food items like bubble gum, roadside food contaminated with housefly, factory made chemicals added, tinned or fast food are harmful to our health. It is good to avoid these food items. Why? Then what kind of food should we consume?

What are healthy food items? What are the unhealthy food items?



**Substances  
that provide nutrients  
for the body  
are called food.**

### Activity 1

List out the food items that you consume in the following space provided.

Morning \_\_\_\_\_

Afternoon \_\_\_\_\_

Night \_\_\_\_\_

## Unit 2

### What are the various sources of food?

#### Food items obtained from plants and animals:

The root, stem, leaf, flower, vegetable, fruit and seed of the plants are used as food for us. Different food items like milk, egg and meat are obtained from animals.

#### Activity 2

List out the food items obtained from plants and animals in the following table

Food items obtained from plants	Food items obtained from animals
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

#### Nutrients

The constituents of the food which are essential for the body are called nutrients. Does a food contain more than one nutrient? Do you know any food without nutrients? Why do we need nutrients?

#### Types of Nutrient

- Carbohydrates - Provide energy
- Proteins - Help in growth
- Fats - Provide energy
- Vitamins - Help in physiological activities
- Minerals - Act as regulators in physiological activities
- Water - Transports food, regulates body temperature.

#### Activity 3

Take a cucumber. Cut it into small slices. Water oozes out while cutting! Why?

**Water content in vegetables, fruits and food items:**

Name of the food	Water content
Cucumber	95%
Potato	75%
Mushroom	92%
A bread slice	25%
Egg	73%
Milk	87%
Water melon	99%


**Let us know**

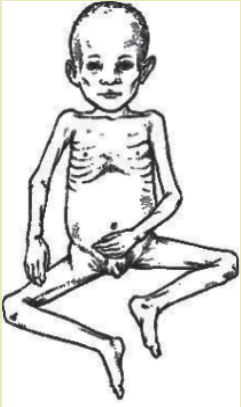
- ▶ Vitamins will be lost when vegetables and fruits are washed after cutting.
- ▶ Adequate amount of vitamins and minerals are present in the peels of fruits and vegetables.
- ▶ We lose vitamins and minerals in cereals and pulses by washing it several times.

**Deficiency Diseases:**

Diseases caused due to the deficiency of nutrients in food that we eat are called deficiency diseases.

**Deficiency diseases and their symptoms**

<b>Nutrient : Protein</b>	 <p>Kwashiorkor</p>
<b>Food source:</b> Fish, meat, egg(albumin), milk, peas, cereals	
<b>Deficiency disease :</b> Kwashiorkor (children from 1-5 age)	
<b>Symptoms:</b> retarded growth, pot belly, swollen limbs.	

<b>Nutrient : Protein</b>	 <p>Marasmus</p>
<b>Food source:</b> Fish, meat, egg(albumin), milk, peas, cereals	
<b>Deficiency disease :</b> Marasmus	
<b>Symptoms:</b> Thin limbs, weak appearance, enlarged head, loss of weight, retarded physical and mental growth.	

## Unit 2

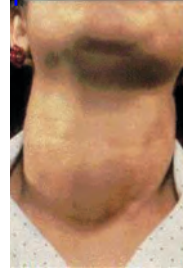
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### Vitamins

Nutrient	Food source:	Deficiency disease	Symptoms
Vitamin A	Fish liver oil, egg, milk, ghee, butter, carrot, corn, yellow fruits, greens.	Night blindness	Defective vision, blindness in dim light
Vitamin B	Whole grains, pulses, unpolished rice, milk, fish, meat, peas, gram, raw vegetables	Beri-beri	Unhealthy nerve, muscle fatigue
Vitamin C	Orange, lemon, gooseberry, green chilies, tomato.	Scurvy	Bleeding gums
Vitamin D	Fish liver oil, milk, egg. It is also produced in the skin with the help of sunlight.	Rickets	Weak and bow bones
Vitamin E	Vegetable oils, green vegetables, whole wheat, Mango, Apple, Greens	Infertility	Sterility and reduction of immunity
Vitamin K	Green vegetables, Tomato, Cabbage, Egg, Milk and milk products.	Haemorrhage (blood does not clot)	Loss of excessive blood even for a small hurt
<b>Minerals</b>			
Calcium	Milk, Fish, Wheat, Green Gram	Disintegration of bones and teeth	Weak bones and teeth.
Iron	Meat, Apple, Greens, Dates	Anaemia	Body fatigue. Giddiness.
Iodine	Milk, Iodized Salt, Prawn, Crab	Goitre	Inflammation in neck



Scurvy



Goitre

We can avoid diseases caused by deficiency by consuming nutritious food

### Balanced diet

A food that contains all the nutrients in the right proportion is a balanced diet. Go through the following table.

S.No	Food category	Nutrients present
1.	<b>Cereals:</b> Rice, Wheat, Ragi (Finger millet) Bajra (Pearl millet), Sorghum, Corn Barley, Rye	Carbohydrate, protein, a small amount of lipid, vitamin B, folic acid, iron, fibre.
2.	<b>Pulses:</b> Red gram, Black gram, Green gram, Horse gram, Bengal gram, Chick pea, Pea, Soya beans, Country beans etc.,	More proteins, a small amount of lipid, vitamin B, folic acid, iron, fibre
3.	<b>Milk and meat products:</b> Milk, Ghee, Curd, Yogurt, Skimmed milk,	Protein, lipid, vitamin B, calcium
	Chicken, Liver, Fish, Egg, Mutton.	Protein, lipid, vitamin B
4.	<b>Fruits and Vegetables:</b> Mango, Guava, Tomato Papaya, Orange, Water melon, Sweet lime, Grapes	Carotenoid, vitamin A, vitamin C, Iron, calcium
	Gooseberry, Greens, Drumstick leaves, Coriander, Lettuce, Spring onion.	A small amount of lipid, carotenoid, vitamin B <sub>2</sub> , folic acid, calcium, iron, fibre
	Carrot, Brinjal, Lady's finger, Capsicum, Country bean, Onion, Drumstick, Cauliflower.	Carotenoid, folic acid, calcium, Iron fibre.
5.	<b>Ghee, Oils:</b> Butter, Ghee, Vanaspathi, Cooking oils like Groundnut oil, Coconut oil, Gingely oil.	Lipid, Essential fatty acids
6.	<b>Sugar, Jaggery</b>	Carbohydrate, iron.

## Unit 2

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Let us know

Jaggery provides more benefits to the body than sugar

- Will it be enough for all the age group to have same quantity and same type of food?
- Is it possible to get balanced diet for less price?

### Activity 4

Name of any one of the grains, pulses, fruits, vegetables, tubers and dry seeds should be written by the students. Then they must discuss and know the nutritional value of these food substances. Then they must be divided into small groups. Each group must find whether the food substances written by them make up a balanced diet

**Nutrition is the mode of intake of food.**

### Nutrition:

How do living organisms get energy from these food substances? Ingestion, digestion, absorption and assimilation are the various stages of nutrition. Organisms consume both solid and liquid food substances by various methods.

### Types of nutrition

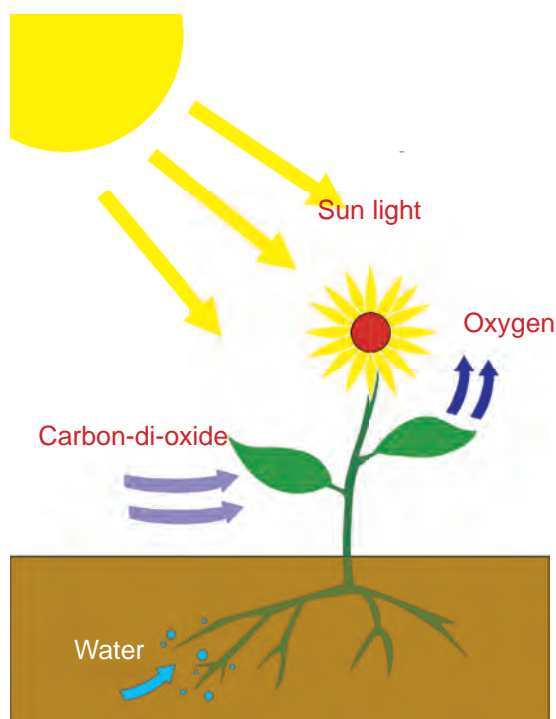
#### 1. Autotrophic nutrition

Mode of nutrition in which an organism prepares its own food is called autotrophic nutrition. E.g.: Green plants, Euglena. They prepare their own food by photosynthesis.

#### 2. Heterotrophic nutrition

The mode of nutrition in which an organism depends on other organisms for food as they cannot prepare their own food is called heterotrophic nutrition.

Preparation of starch (sugar) by the plants with the help of sunlight,  $\text{CO}_2$  water and chlorophyll is photosynthesis.



**Types of Heterotrophic nutrition****Endoparasites****Parasitic nutrition:**

The mode of nutrition in which an organism depends on another organism for its food and survival is called parasitic nutrition. The plant *Cuscuta* depends on other plants for food. It is an example for parasitic nutrition.

**Cuscuta****Scientific Name :***Cuscuta reflexia***Local Name:**Ammaiyaar koonthal/Sadathaari/  
Thanga kodi

(அம்மையார் கூந்தல்/சடதாரி/ தங்கக்கொடி)

**Types of parasites:****Ectoparasites**

Organisms like head louse, leech, etc. are found attached to the outer surface of the body and get nourishment from the host. So, these are called as Ectoparasites.

**Animals based on nutrition:**

Animals which feed only on plants are called herbivores e.g. goat, cattle. Animals which feed on other animals are called carnivores e.g. tiger. Animals which feed on both plants and animals are called omnivores e.g. crow.

Round worm lives inside the body (gut) and derives food from the intestine. So it is an endoparasite.

**Saprophytes**

In saprophytic nutrition, the organism decomposes the dead plant and animal substances and converts them into simple molecules and absorbs them through their body wall. E.g. Mushroom.

Discuss with your teacher how does the non green plants and animals prepare their own food?

**3. Special type of nutrition**

Plants like *Nepenthes*, *Drosera*, and *Utricularia* are green in colour and are autotrophic.

Since they are found in nitrogen deficient soil, they trap insects and kill them to get nitrogen from them. So they are called insectivorous plants.

**Drosera**

## Activity 5

Can you write the names of animals that you know and mention their mode of nutrition?

Name of the animal	Herbivorous	Carnivorous	Omnivorous
Cockroach			✓
Deer	✓		
Lion		✓	

### What are the ways to prevent heart disease?

1. Be happy
2. Maintain weight according to height
3. Do regular exercise and involve in games
4. Avoid fried food items
5. Do not smoke



### Which is a good food?

We have to maintain our organs in a good condition to lead a healthy life for a long time. It is based on the choice of food we consume.

It is necessary to take care of organs like heart, kidney and lungs. Good exercises and games are required. Junk foods and fried items should be avoided. Instead, food items containing protein and fibre like

peas, cabbage and greens can be added in daily diet.

Steamed fish items and brinjal rich in ascorbic acid, prevent heart diseases.

We have to add vegetables equally with our food containing starch like rice, wheat, bajra, maize and ragi.

Doctors also say that some kind of fruit should be taken along with the diet.

### Extended activity

1. On a particular day, the students can list out the various food items they consumed along with the nutrients. By forming small groups, students have to discuss whether the food they consumed is a balanced diet? This will be beneficial to all the students.
2. List out the food items that you like and dislike in the diet that you take everyday.



My favourite food

Name of the food	Nutrients	Use

The food I dislike

Name of the food	Nutrients	Effect

Think for a few seconds

Form small groups and discuss the following content

You might have observed variety of food items are served in marriage halls and parties. Are they consuming all the food items or wasting it?

- ☛ Is wasting food correct ?
- ☛ What is the reason for wasting food ?
- ☛ What are the remedial measures you would suggest to avoid wastage of food ?

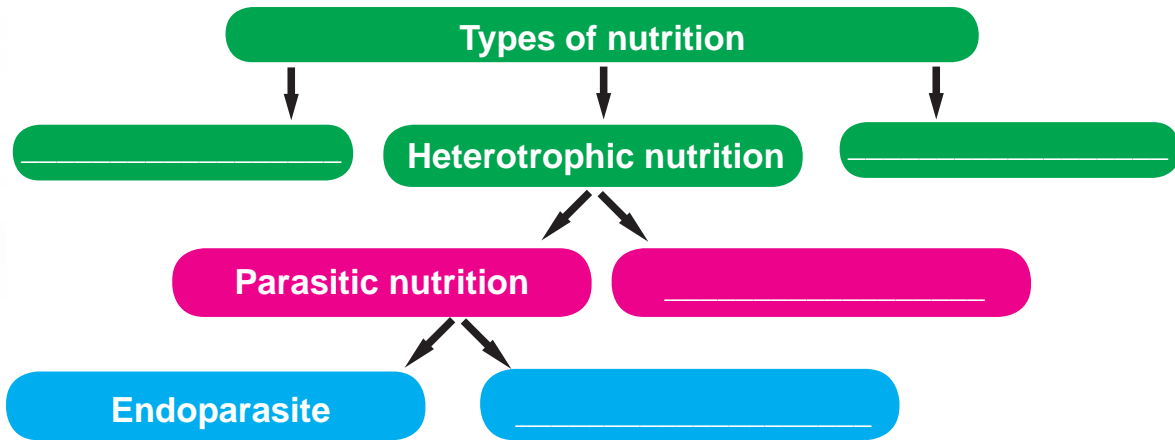
“Health is wealth”

Evaluation

Fill in the blanks:

1. Disease caused due to proteins deficiency is \_\_\_\_\_  
(Marasmus/Night blindness)
2. Deficiency of Vitamin C causes \_\_\_\_\_ (Scurvy/Rickets)
3. \_\_\_\_\_ is an omnivore. (Crow/goat)
4. Milk is rich in \_\_\_\_\_ (calcium/Iron)
5. \_\_\_\_\_ regulate the physiological activities. (Protein/Minerals).
6. \_\_\_\_\_ is used to strengthen the bone. (Calcium/Iron)
7. \_\_\_\_\_ is saprophytic in nutrition. (Euglena/Mushroom).
8. Anaemia is caused due to deficiency of \_\_\_\_\_ (Iron/Protein).
9. \_\_\_\_\_ is synthesized in skin with the help of sunlight.  
(Vitamin B / Vitamin D).
10. Rickets is a \_\_\_\_\_ deficiency disease. ( Vitamin A / Vitamin D).

II) Fill in:



III. Think and answer:

1. Observe the following picture.

Mahesh! You become so fat like a blotted balloon because you drink softdrinks while watching TV. Come... let us eat this mango and play.

No...no..... I am not coming Suresh; I don't like to play.I will get fever if I play.



- Among the two, whose attitude is correct? Why?
- From the following activities which will lead us to have healthy and a long life.
  - ☛ include more vegetables and fruits in diet.
  - ☛ wake up early in the morning.
  - ☛ watching T.V till late night.
  - ☛ eating more fast food.
  - ☛ participating in playing games like cricket , swimming and chess.

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2. Mala's gum became inflamed and started bleeding. Mala's mother was frightened and took her to the doctor. What would the doctor have said as a reason for this disease? What kind of food doctor would have prescribed to Mala?
3. Should we wash the fruits and vegetables before or after cutting? Give reasons for your answer.
4. Few food items are placed on the table. Arthy wanted to select and eat the food which is rich in nutrients and healthy. You too can help her.

The image shows a central white plate with a yellow border. Surrounding the plate are ten food items, each in a white octagonal frame with a small white box below it for a selection mark. The items are:

- Top-left: A roti (flatbread).
- Top-middle: A corn cob.
- Top-right: A hard-boiled egg sliced.
- Middle-left: Four bottles of soft drinks (one with an 'X' mark).
- Middle-right: French fries and a burger.
- Center: Sprouts (with a checkmark).
- Middle-bottom-right: A variety of fresh vegetables.
- Bottom-left: A chocolate bar.
- Bottom-middle-right: A bowl of potato chips.
- Bottom-left: A roasted chicken.
- Bottom-middle: A glass of milk.
- Bottom-right: A basket of fresh fruits.

## Unit 2

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Answer the following question:

1. What is nutrient?
2. Mention the different kinds of nutrients and its functions.
3. Why does few plants feed on insects?
4. What kind of food should be taken to prevent night blindness?
5. What is Balanced diet?

### Let us know

- ☛ We should avoid intake of artificially coloured foods like kesari and cotton candy. The chemicals added in it are harmful to us.
- ☛ When you eat food chew and taste the food. Avoid eating food while watching TV or talking as you may eat more. This leads to obesity and causes many other diseases.
- ☛ Vegetables, greens should be taken in raw or half-boiled. By doing this we can avoid loss of nutrients
- ☛ Eating leftover food kept in the refrigerator, the next day leads to health disorder.
- ☛ Consuming bottled drinks, packed chips, oil fried food items which are sold in shops is harmful to our health.

### FURTHER REFERENCE



Websites:

[http://en.wikipedia.org/wiki/Deficiency\\_diseases](http://en.wikipedia.org/wiki/Deficiency_diseases)

<http://www.diethealthclub.com>

# Changes Around Us

3

Kalpana Chawla was the first Indian woman who travelled to the space. This is an excerpt from the interview given by her in the year 1997 when she returned from space .

Interviewer: How did you feel when you flew in the space? What were the changes you felt?

Kalpana Chawla :- In the beginning, all parts of the body seemed to lose weight. I was not able to feel any of my body parts, as our body loses weight in space. I was crossing India with excitement as the space shuttle was whirling with high speed. The Gangetic plains looked like a thin line, Africa looked like a desert and the river Nile was like a thin streak. I went round the whole world within one and a half hour. I observed with wonder, the changes of day and night within short span of time. The tremendous changes in the different phases of moon from New moon to Full moon within a short duration created thrill and amazement. Everything took place very fast.



Kalpana Chawla

How do you feel when you read her statements? Is it not wonderful? The slow and natural changes that take place on earth seemed to take place at a faster rate while we travel in the space.

What are the changes we come across, when we return from our vacation?

We notice :

- the dried up canals
- the newly laid road
- the rusted bicycle.

During the space travel kalpana chawla observed many changes like day and night which is due to rotation of the Earth. Shall we also observe the changes around us starting from the seasonal changes like rainy to winter, winter to summer?.

# Unit - 3

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Look at the pictures given below and discuss in groups about the changes taking place.



Fill in the blanks with the given hints.

1. The \_\_\_\_\_ and \_\_\_\_\_ of the child has increased.
2. The \_\_\_\_\_ changes during day and night
3. The \_\_\_\_\_ and the \_\_\_\_\_ change during ripening of a mango,

(Hints: temprature, weight, taste, height, colour)

Hence changes in colour, temperature, place, shape, and size of the substances are considered as changes.

## Slow and Fast Changes

### Activity 1

Discuss in small groups about the time duration for the changes to take place.



Changes	Duration (few hours/ days/ weeks/months/ years)
Growth of a child	_____
Rusting of iron	_____
Germination of a seed	_____
The cooking of food	_____
Curdling of milk	_____

My Inference: All changes take place in \_\_\_\_\_ (the same/different) time duration.

Changes that take place in a few hours, days months or years are called **slow changes**.

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Burning of a paper, bursting of crackers, glowing of an electric bulb take place in a few seconds or minutes. Isn't it?

The changes that take place in a short duration of time are called **fast changes**.



Fast changes



Slow Change

### Activity 2

Take a cup of Petrol and a cup of Water and place them in Sunlight. Observe the changes and identify the slow and fast change.

1. Evaporation of water is \_\_\_\_\_
2. Evaporation of Petrol is \_\_\_\_\_



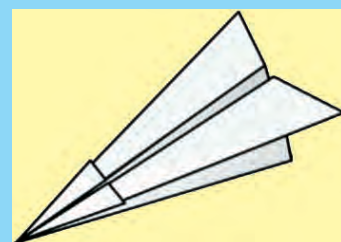
### Let us know?

Trees which are buried under the earth nearly 34 crore years ago had undergone many changes and turned into coal.

## Reversible and Irreversible Changes

### Activity 3

Take a piece of paper and make a model of rocket as shown in the picture. Shall we unfold it after playing? Can you get back the same piece of paper? What do you infer?



## Activity 4

Take a balloon and inflate it by blowing air. After sometime release the air from it. Does the balloon get back its original shape?

What do you infer? \_\_\_\_\_



Inflate the same balloon and tie it using a thread. Pierce it with a bell pin. Can you inflate the balloon again?

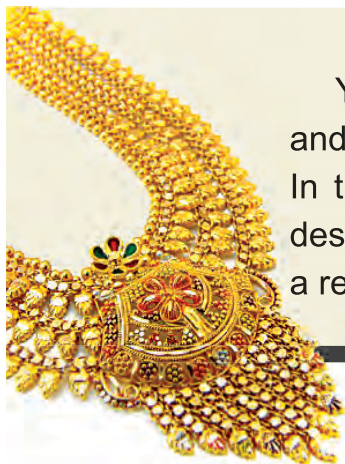
What do you infer? \_\_\_\_\_

Can we get back the green vegetables from cooked ones? The batter from Idly or dosa? Raw rice from cooked rice?

Is it possible to get back the original substances in the above changes ?  
\_\_\_\_\_.(yes/No)

**In some changes, the substance can be brought back to its original state. Such changes are called **reversible changes**.**

**The change in which the substance cannot be converted back into its original form is called **Irreversible change**.**



Let us know?

You would have seen some hard metals like gold, silver, and Iron being used to make ornaments and instruments. In this process, metals are heated, melted and cast into desired shapes. On cooling they become hard. This is also a reversible change.

I have seen workers laying road using black substance (Tar). Is melting of tar a reversible change? or irreversible change?



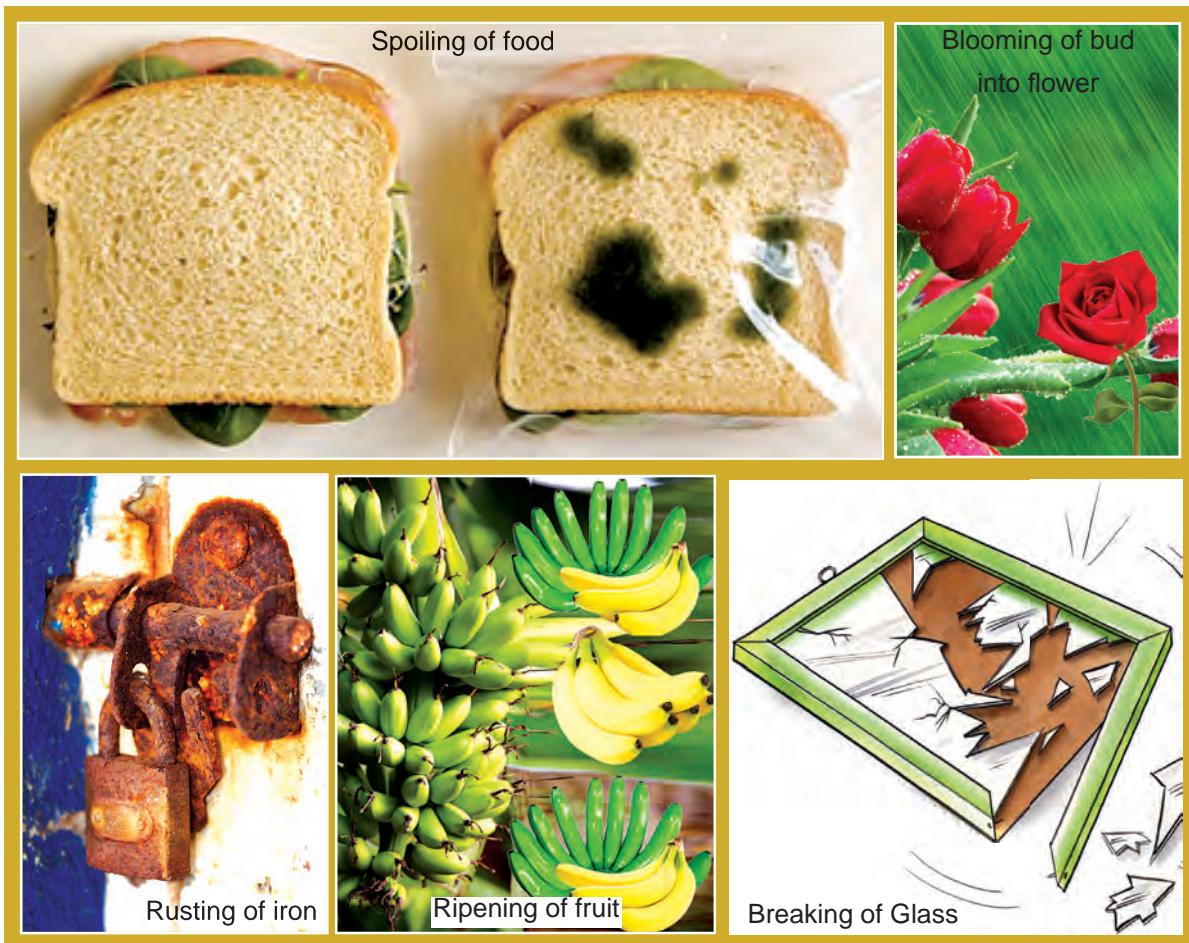




Reversible change		Irreversible change
Melting of ice	1. Curdling of milk	_____
_____	2. Melting of ice	_____
_____	3. Burning of wood	_____
_____	4. Batter into Idly	_____
_____	5. Evaporation of water	_____
_____	6. Greying of hair	_____

**Desirable and Undesirable Changes:**

Are all changes that take place around us useful? Look at the pictures and write whether the changes are useful to us or not.



Changes like raining, ripening of fruits are useful to us. Such useful changes are called **desirable changes**.

Changes like spoiling of food, eruption of volcano are not liked by us, as they are harmful and not useful to us. Changes which are not useful to us are called **undesirable changes**.