



# 1

## WHAT IS HOME SCIENCE?

As the name suggests, Home Science is concerned with the home, health and happiness of all the people living in it. As a field of specialization, Home Science draws its content from courses in both science and art. Thus, representing an interdisciplinary field that prepares young learners for the two most important goals in their lives – caring for their home and family as well as preparing for a career or vocation in life. Hence, its scope extends to activities associated with setting home based enterprises as well as consultancies.

Today, men and women share the responsibility of a home and family equally. They need an equal amount of preparation in making the best use of the resources available to make their lives comfortable. In this lesson, you will discover the scope of the science and art behind Home Science and the different professional avenues available to you after specializing in this field.



### OBJECTIVES

After reading this lesson, you will be able to:

- explain the meaning and importance of Home Science;
- establish the relevance of Home Science to men and women;
- present some facts about Home Science as a discipline and profession, and
- identify various academic and vocational opportunities available to you after studying Home Science.

### 1.1 MEANING OF HOME SCIENCE

Home Science or the science of managing a home, includes all the things that concern ourselves, our home, our family members and our resources. It aims at getting maximum satisfaction for us and our family members through the efficient and scientific use of your resources. *Home Science means the art of managing your resources efficiently and the science of achieving a healthy and happy home as well as successful career.*

# MODULE - 1

## Home Science in Daily Life



### Notes

### What is Home Science?

You must have noticed the words ‘art’ and ‘science’ being used together in the definition given above. This is because Home Science teaches you the art of using things so that a harmonious whole is achieved and an overall pleasant effect is created. At the same time, it gives you all the scientific knowledge of the procedures involved in making a home aesthetic. Let us take an example- Home Science will teach you about the different nutrients required by the body and the different functions they perform. This is the ‘science’. When you are able to select various dishes having those necessary nutrients and serve them attractively to your family and motivate them to eat the right foods, it is an ‘art’.

Developing the ability to communicate effectively with all the family members including children and elderly, is an important skill and art that we all have to inculcate for harmonious interpersonal relationship and a happy and peaceful life. This essential skill is also learnt by studying Home Science.

Home Science draws an important part of its content from pure science disciplines such as physics, chemistry, biology, physiology and hygiene. It also draws its content equally from economics, sociology, anthropology, psychology, community development, communication, media and technology. Thus, making it an interdisciplinary field which draws from the strengths of science and arts courses.

This combination of science and art holds true in all the areas of Home Science. Some of these are as follows:

- the interpersonal communication amongst family members;
- the family that you care for;
- the food that you eat;
- the house that you live in;
- the clothes that you wear;
- the resources that you use;
- the environment around you and
- the skills and environment that can lead to successful career.



### ACTIVITY 1.1

State the art and science in following activities you perform at home. The first two have been done for you:

<i>Activity</i>	<i>Art</i>	<i>Science</i>
to have a bath	feel fresh and clean	<ul style="list-style-type: none"><li>• dirt and germs are removed from your body</li><li>• pores on skin get open</li></ul>



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prepare breakfast	serve attractively	<ul style="list-style-type: none"> <li>• select right food</li> <li>• use of correct method of cooking to preserve nutrients</li> <li>• enhance nutritive value of food.</li> </ul>
wash clothes		
clean the house		
make grocery purchases		
use household appliances		
caring for children		

## 1.2 RELEVANCE OF HOME SCIENCE

Traditionally Indian society had clearly demarcated areas of work for both men and women. However, with the changing social and economic environment, managing a home requires the efforts of all the family members. Today, more and more women are working- whether they go to an office or work from home. Therefore, gender based stereotype roles do not hold relevance any longer. Today, you can learn to manage your own resources better by studying various areas of Home Science. If you face any problem, Home Science gives you the right tools to solve. In doing so, you become more organized and efficient. Home science opens up a large arena of possible job opportunities for both men and women. This knowledge helps in the improvement of not only your home and personal life but also your professional life.



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#### Home Science is for both Boys and Girls

- Both have to succeed in an increasingly competitive world
- Both have to share household responsibilities and tasks
- Both need to manage resources
- In case of a problem they have to solve it together with other family members.
- Home Science offers varied vocational and professional avenues for both boys and girls
- Joint knowledge and skills help to improve the standard of living.

You and your family members can achieve personal satisfaction and use the skills gained through Home Science to improve your family's economic condition as well. As in Home Science you will learn several skills that can enable you to set up home based enterprises or consultancies like a boutique, catering unit, crèche, day care centre, etc. You will learn more about this aspect later in this chapter.



#### ACTIVITY 1.2

Do you agree with the following statements? Give reasons for your opinion?

<i>Situations</i>	<i>Agree/Disagree</i>	<i>Reasons</i>
Only a mother can look after a sick child	Disagree	Anyone with a caring attitude can look after a sick child. Gender does not play any role. Male doctors take equally good care of patients as female doctors do.
Purchasing of electronic appliances items should be preferably done by men		
Washing, ironing, folding and keeping away the weekly laundry is best handled by women		
Money is best managed by men		

Discuss your opinion with your friends. Find out their opinion also. Decide who needs to change his/her opinion and why.



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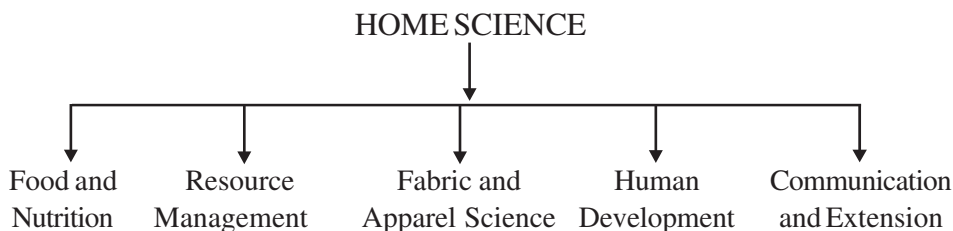
### 1.3. HOME SCIENCE- A DISCIPLINE AND PROFESSION

- Home Science covers a few areas of specialization such as Food and nutrition, Communication and Extension, Resource Management, Human Development, Fabric and apparel science. We learn and develop good interpersonal relationships within and outside the family. We also learn to manage our resources like time, energy and money so that we get maximum satisfaction. Home science also involves learning the skills intending all this useful to our family or community, especially the underprivileged for better life.
- We value our traditional knowledge, experiences offered to us by our parents and grandparents. We should continue and value this. The new advance in science and technology and management equip us better and deal with the changing social and economic environment and meet the challenges of the 21<sup>st</sup> century.
- Home science syllabus draws its strength from both science and arts discipline. This enables the student to develop the ability and understand the concept as well as apply them in various contents situation. This gives home science students an edge above all other disciplines. This prepares them for vast range of opportunities unlike other discipline.

### 1.4 AREAS OF SPECIALIZATION IN HOME SCIENCE

By now you must have understood that Home Science is an important area of study. Let us now find out in detail the specific areas that you have to study in this subject.

There are five major components or areas of specialization in Home Science:



Today, Home Science is so advanced that each specialization is a domain in its own with its areas of specialization and vocation/professional opportunities. Some of the areas of further specialization are as follows:

<i>Main Branch</i>	<i>Area of further specialization</i>
Food and Nutrition	<ul style="list-style-type: none"> <li>• Food Science</li> <li>• Nutrition-Clinical Nutrition and Community Nutrition</li> <li>• Institutional food service</li> </ul>

# MODULE - 1

## Home Science in Daily Life



Notes

### What is Home Science?

Fabric and Apparel Science	<ul style="list-style-type: none"><li>• Clothing Construction</li><li>• Textile Science</li><li>• Textile Designing</li><li>• Garment Designing</li><li>• Care and Maintenance of Clothes</li></ul>
Resource Management	<ul style="list-style-type: none"><li>• Resource Management</li><li>• Housing and Equipment</li><li>• Interior Decoration</li><li>• Consumer Education</li></ul>
Human Development	<ul style="list-style-type: none"><li>• Child - Welfare</li><li>• Adolescence, Marriage and Family Guidance</li><li>• Care of the Elderly</li><li>• Care of special children</li></ul>
Communication and Extension	<ul style="list-style-type: none"><li>• Media for communication</li><li>• Programme planning and evaluation</li><li>• Training and capacity building</li><li>• Management of community service organisations</li></ul>

These options may be only at higher level of studies and not at school level. There are many Home Science colleges in India where you can study these courses. There are various vocational courses based on Home Science discipline like creative embroidery and tailoring, early childhood etc.

The courses are available at graduate and post graduate level. You can conduct doctoral and post doctoral research and contribute to adding new content to Home Science. These courses are offered as regular programmes in colleges as well through distance education made through IGNOU.



### ACTIVITY 1.3

Study the Home Science syllabus given at the end of this Book. Find out the areas that interest you. Make a list of three vocations that are available in that area of Home Science.

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**INTEXT QUESTIONS 1.1**



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1. Select the correct alternative from those given below.
  - (i) Home Science means \_\_\_\_\_ .
    - a) learning to build interpersonal communication
    - b) the art of managing your resources
    - c) developing a skill to start an enterprise
    - d) all the above
  - (ii) Which of the following is not a specialization area in Home Science?
    - a) Food Science
    - b) Garment Designing
    - c) Nursing
    - d) Interior Decoration
  
2. Read Section 1.1 and list any four ways by which Home Science can help you.
  - 1 .....
  - 2 .....
  - 3 .....
  - 4 .....
  - 5 .....

**1.5 CAREER OPPORTUNITIES IN HOME SCIENCE**

Before you study the different opportunities available in the subject of Home Science, you must understand the concepts of wage employment and self-employment. To understand these concepts, let us take an example - a tailor who sets up a tailoring shop is self-employed whereas he/she is said to be in wage employment when he/she works in a garment factory and gets a salary or wage. **Wage employment** means that you work for another person and receive wages or salary for your services. **Self-employment** means that you are the owner of an enterprise which you run and finance.






You have already read that specializing in Home Science may choose to work in salaried jobs or as self-employed entrepreneurs or as consultants using any of the skills that they may have developed.

Table 1.1 lists these knowledge, skills and opportunities.



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**Table 1.1 Job opportunities in Home Science**

Knowledge/ Skills	Wage Employment Opportunity	Self-Employment Opportunity
Catering 	<ul style="list-style-type: none"> <li>• Staff in canteen, restaurant</li> <li>• Cook; coffee/tea shop, etc.</li> <li>• Service Staff</li> </ul>	<ul style="list-style-type: none"> <li>• Owner of a canteen, restaurant, coffee/tea shop etc.</li> <li>• Food Service from home</li> <li>• Conducting hobby classes</li> </ul>
Food preservation / Bakery and Confectionery 	<ul style="list-style-type: none"> <li>• Production</li> <li>• Training of Service Staff</li> <li>• In-charge of a community centre</li> </ul>	<ul style="list-style-type: none"> <li>• Owner of a production unit</li> <li>• Home based production services</li> <li>• Conducting hobby classes</li> <li>• Training NGO functioning as a livelihood promotion initiative</li> </ul>
Interior Decoration 	Work for an organisation <ul style="list-style-type: none"> <li>• Interior Designer</li> <li>• Furniture Designer</li> <li>• Staff at show rooms</li> <li>• Conducting hobby courses/ classes</li> <li>• Show case and window display design</li> </ul>	Self employed as <ul style="list-style-type: none"> <li>• Interior Designer</li> <li>• Furniture Designer</li> <li>• Staff at show rooms</li> <li>• Conducting hobby courses/ classes</li> <li>• Show case and window display design</li> </ul>
Arts and Crafts 	<ul style="list-style-type: none"> <li>• Staff at government emporiums/show rooms/ antique shops</li> <li>• Designer for arts and crafts items</li> <li>• Staff at production units</li> </ul>	<ul style="list-style-type: none"> <li>• Running own shop/ enterprise</li> <li>• Home-based craft centre</li> <li>• Conducting hobby courses/classes</li> </ul>
House Keeping and Laundry Services 	<ul style="list-style-type: none"> <li>• Staff at hotels and guest houses</li> <li>• Facilities manager</li> </ul>	<ul style="list-style-type: none"> <li>• Running a guest house</li> <li>• Home based paying guests service</li> <li>• Contract services</li> </ul>





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<p>Dress Designing, Garment Construction; Textile Designing</p> 	<ul style="list-style-type: none"> <li>• Staff in a Production unit/export house</li> <li>• Staff at textile designing unit</li> <li>• Staff at boutique</li> </ul>	<ul style="list-style-type: none"> <li>• Owner of a shop or boutique</li> <li>• Home based services</li> <li>• Conducting hobby classes</li> </ul>
<p>Teaching</p> 	<ul style="list-style-type: none"> <li>• Staff at crèche, play school, day care centre</li> <li>• Teaching in a school/college</li> <li>• Teaching in polytechnics</li> </ul>	<ul style="list-style-type: none"> <li>• Owner of a crèche, play school etc.</li> <li>• Day-care or after care in school for young children</li> <li>• Conducting tuitions at home</li> <li>• Conducting short term in areas of Home Sci. courses</li> </ul>
<p>Communication and Extension</p> 	<ul style="list-style-type: none"> <li>• Staff in development organisation</li> <li>• Counsellors</li> <li>• Researchers</li> <li>• Social Entrepreneurs</li> <li>• Trainers and facilitators</li> <li>• Staff in Public Relations and Human relations department</li> </ul>	<ul style="list-style-type: none"> <li>• Counsellors</li> <li>• Establishing development organisation</li> <li>• Market research agencies.</li> <li>• Media production and management.</li> <li>• Communication and development consultant</li> <li>• Offering short-term courses- content development, theatre, puppetry etc.</li> </ul>
<p>Resource Managers and Consumer Education</p>	<ul style="list-style-type: none"> <li>• Staff in retail outlets</li> <li>• Staff in event management firms</li> </ul>	<ul style="list-style-type: none"> <li>• Event managers</li> <li>• Small savings agent</li> </ul>

Having read Table 1.1 you will agree that besides providing education for your overall development, Home Science prepares you to take up a job outside the home as well as set up a home enterprise. For example, as a Home Science trained person, you can join a garment export house as a wage employee but if you are not able to leave the house, you can set up a tailoring boutique at home. You will also agree that you can be engaged in both wage and self-employment in all areas of Home Science.

You must remember that to be successful you need to have thorough knowledge of the subject, some practice and experience. The school level course in Home Science gives you only basic knowledge in the subject. In order to get ready for a job, you need to



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do specific advanced courses offered by a number of institutes. The National Institute of Open Schooling also offers a number of vocational courses in the area of Home Science.



### INTEXT QUESTIONS 1.2

1. Give any four examples of home-based self-employment opportunities in the area of Home Science.

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_
- (iv) \_\_\_\_\_

2. List any one wage-employment opportunity in the five specialisation areas of Home Science

Specialisation	Employment Opportunity
(i) Food and Nutrition	
(ii) Resource management and Designing	
(iii) Clothing and Textiles	
(iv) Human Development	
(v) Communication and Extension	

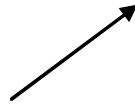
3. Classify the following either as wage-employment (WE) or as self-employment (SE). Tick mark the option you choose.

		WE	SE
i.	Pre-school teacher		
ii.	Owner of a home accessories showroom		
iii.	Production unit staff		
iv.	Consultancy service provider		
v.	Research Assistants		
vi.	Conducting hobby classes		
vii.	Owner of a boutique		
viii.	Guest House manager		
ix.	School teacher		
x.	Development Consultant		



**WHAT YOU HAVE LEARNT**

- teaches everything concerning the home
- is useful for both men and women
- needs to be studied formally



**HOME SCIENCE**

has five basic component areas

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Food and Nutrition      Resource Management      Textiles and Clothing      Human Development      Communication and Education

Academic Courses at Graduate and Post Graduate level

Research

can lead to self and wage-employment



**TERMINAL EXERCISES**

1. Discuss in 10 lines the relevance of Home Science in your day-to-day life.
2. What are the various components or areas of Home Science? List areas of further specialisation in any one of these areas?
3. List the various opportunities for people in wage-employment and self-employment capacity in any one area of Home Science.
4. State whether the following statements regarding Home Science are correct or incorrect. Give reasons for your answer if marked as incorrect. Write T for true and F for incorrect.
  - (i) Study of Home Science does not lead to a career.
  - (ii) Home Science equips both girls and boys to perform their dual role as home makers and as professionals.



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## ANSWERS TO INTEXT QUESTIONS

- 1.1**
- (i) d (ii) c
  - (i) resources efficiently (ii) beautiful, well managed (iii) successful career
- 1.2**
- Catering, Home based production services
    - Interior decoration and Furniture Designer
    - Dress/Textile designing, Owner of a shop or boutique
    - Social welfare, Day-care or school after care for young children
    - Researcher, Organisation communication consultant
  - |                     |                    |
|---------------------|--------------------|
| Wage-employment     | Self-employment    |
| i, iii, v, viii, ix | ii, iv, vi, vii, x |



Notes

**2**

## **FOOD AND ITS NUTRIENTS**

Think about the meals you ate yesterday. Write all the food items you consumed in the table given below. You will realize that you ate different kinds of food item. Why do we need to eat a variety of food? How do these food items help us? In this lesson you will find answers to these questions.

**Table 2.1. Food items consumed by you yesterday:**

<i>Breakfast</i>	<i>Lunch</i>	<i>Snack</i>	<i>Dinner</i>



### **OBJECTIVES**

After studying this lesson you will be able to :

- define the term ‘food’ and explain its functions in our body;
- state important functions and sources of each nutrient in our body;
- explain the role of nutrition and nutrients in healthy living;
- describe the term malnutrition and its effects and
- suggest appropriate measures to prevent and cure malnutrition.

### **2.1 FOOD AND ITS IMPORTANCE FOR HEALTHY LIVING**

Food satisfies our hunger and provides energy for day to day living. It is also an important part of all our social occasions. When you go to a friend’s house, you are generally greeted and offered something to eat and drink. So food serves a social



function. Similarly when you are away from your home you not only miss your family but also food. Thus, food is important in our life.

Can you elaborate the importance of food in our life? Yes, you are right. We eat to satisfy our hunger, feel happy and even celebrate special occasions. Let us now learn about the various functions of food.

### 2.1.1. Food gives us energy to work

We need energy to do our work. We need energy for walking, playing, eating, working in the house or outside and for other activities.

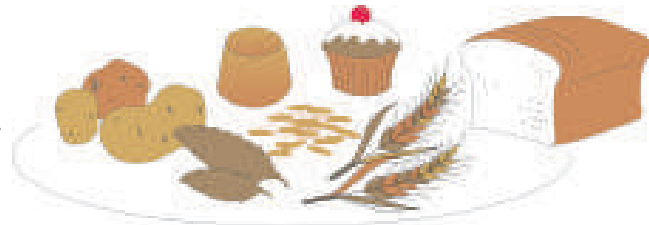


Fig. 2.1

### 2.1.2. Food helps in the growth and repair of tissues

A small child grows into an adult. Do you know the relationship between the growth of our body and the food we eat? The body is made up of thousands of small cells. New cells are added to help the body to grow in size. We need food for the formation of new cells. In addition to growth, new cells are made to replace the dead and damaged cells. Therefore, food helps not only in growth but also in the repair of tissues.

### 2.1.3. Food gives strength to fight against diseases

We are always surrounded by disease causing organisms. The food we eat helps us in providing protection against them. If we fall ill, food helps us to recover from illness.

### 2.1.4. Food helps the body to function normally

Do you think we need energy even when we are at rest? Yes you are right, it is because the vital organs inside your body are always working. For example, our heart is pumping blood, stomach is digesting food and lungs are breathing in air. These organs need energy to perform their role which is provided by the food we eat.



### ACTIVITY 2.1

Anuradha and Shonali were living happily with their parents, younger brother and a dog. Suddenly they lost their parents one after the other and then their dog. The younger brother also left them because of his posting in another town. The sisters went into depression and initially stopped eating regularly and then totally. They became weak



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and stopped communicating with others. Finally they had to be admitted in a hospital in a state of acute depression and nutritional deficiencies. Anuradha died due to severe under nutrition. Shonali survived and had to be treated by doctors, nurses and social workers for a long time for both depression and malnutrition. She had to learn to eat proper meals all over again.

Think about this situation and try to find answers on the basis of the functions performed by food:

Q. What could be the reasons due to which the sisters stopped eating?

Q. Do you stop eating food when you are angry or sad?

You have seen that food performs many functions in our body and all of them are important for not only our existence but also for a healthy life.

### 2.1.5. Food satisfies hunger

We eat food to satisfy our hunger. It also provides mental and psychological satisfaction. Therefore it is the prime need to be satisfied in life.

### 2.1.6. Social functions

Food has always been a central part of our social existence. It helps to relax and creates a friendly mood. People take special care in planning and cooking food for social occasions, so food promotes a sense of community.

### 2.1.7. Psychological functions

In addition to social functions food must also satisfy our emotional needs. These include a sense of security, love and attention. Familiar food items make us feel secure. A baby gets emotional security while being breast fed. Anticipating food needs and fulfilling them are expressions of love, care and attention. Similarly, sharing of food is a token of friendship and acceptance.

## 2.2 NUTRITION AND NUTRIENTS

Have you ever thought what happens to the food we eat? How do we get energy from the food? Now we will discuss about the science behind food and its functions. We can define **nutrition as the science which tells us about what happens to the food when it enters our body and thereafter.** How is food digested and utilized in our body? How does one grow from a little child to a young adult and then an old person?

The food we eat contains many chemical substances. These chemical substances are known as nutrients. We can say that **nutrients are invisible compounds in the food which are necessary for keeping the body healthy.** These nutrients have different names and functions to perform in our body.



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The common nutrients in our food are:

- Carbohydrates
- Proteins
- Fats
- Vitamins
- Minerals
- Fibre
- Water

### 2.3 FUNCTIONS AND SOURCES OF NUTRIENTS

We will now learn about the functions of various nutrients and their sources.

#### 2.3.1 Carbohydrates

Carbohydrates are as important to our body as fuel is to a car. As fuel makes a car run, similarly carbohydrates provide energy to our body, which keeps it going throughout the day. Which food items in our diet contain carbohydrates?

Yes, foods like potatoes, rice and sweets give carbohydrates.


There are two types of carbohydrates in food sugar and starch.

**Sugar:** Sugar is also called simple carbohydrate. Fruits, honey and sugar are some sources of sugar.


**Starch:** starch is called complex sugar. Plants store energy in the form of starch. When we eat plant products containing starch, our digestive system breaks down starch into glucose. This glucose is absorbed in blood and provides energy.

Some foods give carbohydrates to our body in the form of starch. These are cereals, potatoes, sweet potatoes etc. Some other foods give carbohydrates in the form of sugar. For example sugar, honey, jam, jaggery, etc.

**One gram of carbohydrate gives four kcal.** An adult person needs 400-420 gms of carbohydrates everyday.

Functions of Carbohydrates	Sources
<ul style="list-style-type: none"> <li>• Give energy and feeling of fullness.</li> <li>• Increase the bulk of our food.</li> <li>• Spare proteins to perform other functions.</li> <li>• Helps to make the food tasty.</li> </ul>	<p>Starch sources: cereals – like wheat, rice, bajra, maize, potatoes, sweet potatoes, calocasia, etc.</p> 



	sugar sources: sugar, honey, jaggery, sweets, jam, murabba, etc. 
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### 2.3.2 Proteins

Proteins are needed for muscle building and repairing worn out cells and tissues. Our muscles, organs and even blood are made up of mostly proteins. If we do not eat proteins our body will not be able to repair damaged cells or build new ones. Proteins in our diet come from both animal and plant sources.

The proteins from animal source are known as animal proteins and the proteins from plant sources are known as plant proteins. **One gram of protein gives four kilo calories of energy (kcal).** An adult needs 1 gm of protein for every kilogram of body weight per day. For example if Shivali weighs 52 kg then her protein requirement would be approximately 52gms per day.

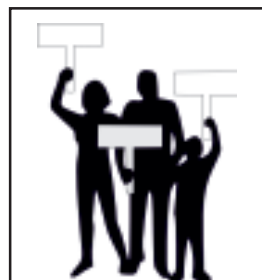
Functions of proteins	Sources
<ul style="list-style-type: none"> <li>• Needed for making new cells in the body</li> <li>• Helps in repairing old and damaged cells.</li> <li>• Helps in healing wounds.</li> <li>• Needed for making blood, enzymes and hormones</li> </ul>	<p><b>Animal Sources</b> Meat, egg, fish, poultry, milk, curd, cheese, etc.</p>  <p><b>Plant sources</b> All cereals, pulses, peas, soyabean, nuts especially groundnut, etc.</p> 



### ACTIVITY 2.2

Calculate the amount of protein you would require for yourself and for other members of your family. Enter their body weight and protein requirements in the table below:

Member	Body Weight (kg)	Protein requirement (g)/ day
Self		
Father		
Mother		
Brother/Sister		






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### 2.3.3 Fat

**One gram of fat gives you nine kcal.** Fat which we get from animals are called **animal fat**. Fat which we get from plants are called **plant fat**.

Although fat gives more energy than carbohydrates, you eat very little fat and hence fat is not the major source of energy in our body. Food containing large amount of fat can lead to obesity. An adult needs only 30 gms (2 table spoons) of fat everyday. Do you know that chocolate, biscuits, pakoras and patties also contain fat?

Functions of Fat	Sources
<ul style="list-style-type: none"> <li>• Give energy, is the concentrated source of energy.</li> <li>• Helps to keep our body warm.</li> <li>• Help in the utilization of fat soluble vitamins like A, D, E, K.</li> <li>• Provides protection to delicate organs like heart, liver and also provides padding on our skeleton and muscles.</li> <li>• Makes the food tasty.</li> </ul>	<p>butter, ghee, groundnut oil, coconut oil, vanaspati, fried oods, chocolates, etc.</p> 



### ACTIVITY 2.3

Find out the average monthly consumption of oil and/or ghee in your family and calculate your average daily fat consumption. Keeping in view the number of family members, find out if your consumption is adequate or not? Carry out the activity in the space provided below:

Total consumption of oil in the family per month.....kg (or lt)

Total consumption of ghee in the family per month.....kg (or lt)

Number of family members.....

Total fat consumption per member/month =.....

Total fat consumption per member/day =.....

*\*Hint – Fat consumption = Total consumption/number of family members*

*\*Hint – 1 lt of oil = 910 gm (approximately)*



### INTEXT QUESTIONS 2.1

1. State four reasons for eating food.

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2. Choose the correct alternative given at the end of each statement given below:

- (i) The main use of proteins in the body is (a) energy for work and play
- (ii) Besides energy fat helps in (b) growth and repair of tissues
- (iii) Carbohydrates are needed to provide (c) making food tasty
- (d) protection to delicate organs in the body

3. Name the main nutrient present in the following:

No.	Food	Nutrient Present	No.	Food	Nutrient Present
(a)	Fish liver oil		(g)	Milk	
(b)	Butter		(h)	Jaggery	
(c)	Vanaspati		(i)	Wheat	
(d)	Cheese		(j)	Egg	
(e)	Dal		(k)	Sweet potato	
(f)	Meat		(l)	Mustard oil	

4. Find out the answers for following questions from the puzzle below. You may look horizontally or vertically. Write your answer in the space provided.

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



Notes



- a) Which nutrient provides maximum amount of energy \_\_\_\_\_
- b) Nutrient found in eggs in abundance \_\_\_\_\_
- c) Major source of energy in our daily diet \_\_\_\_\_
- d) Good source of carbohydrate \_\_\_\_\_

### 2.3.4 Minerals

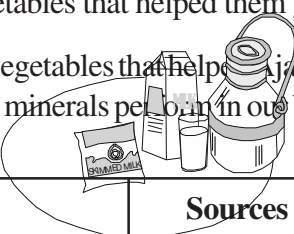
Minerals are present in all body tissues and fluids. Minerals like **calcium** and **phosphorus** are found in bones and teeth. **Iron** is a mineral which is found in blood as a part of the red pigment haemoglobin. Minerals occur in food as salts.

**Calcium** and **Phosphorus** are present in the body in large amounts especially in bones and teeth and are known as **macro or major minerals**.

**Iron** and **Iodine** are found in the body in smaller quantities, hence are known as **micro minerals**.

Ten year old Ajay and his eight year old sister Priyanka asked their mother why she insists that they should consume more milk and green vegetables. Mother showed them their childhood photographs. The children were surprised to see the photographs. They asked their mother how had they become so tall and big! Their mother explained that it's the milk and green vegetables that helped them grow so well.

What is there in milk and green vegetables that helps Ajay and Priyanka grow? Have you ever wondered what role do minerals perform in our bodies? The main functions of minerals are:



Functions of Minerals	Sources
<ul style="list-style-type: none"> <li>• Growth of our body and strength of bones.</li> <li>• Maintenance of water balance in the body.</li> <li>• Contraction of muscles.</li> <li>• Normal functioning of nerves and clotting of blood when needed.</li> </ul>	<p>Milk</p>     <p>Green vegetables</p>

#### (a) CALCIUM

We all require calcium in our daily diet as it performs the following functions in our body:

**Functions**

- (i) Helps bones to grow and become strong.
- (ii) Makes teeth healthy and strong.
- (iii) Helps in clotting of blood. You may have noticed that in case of a minor injury blood stops flowing in few seconds and a hard crust is formed on the wound this is known as clotting of blood, for which calcium is needed. Blood clotting can prove to be a life protecting function.
- (iv) It also helps in the movement of muscles.

Calcium is required in large quantity for optimum growth during childhood. A pregnant woman also needs additional calcium to support the growth of foetus. Absorption of calcium is reduced as a person grows old. So, we should be careful regarding the calcium needs of the elderly persons.

**Sources**

- Milk and its products like paneer, cheese, curd, lassi, chhach, butter milk etc. These are the best sources of calcium.
- Green leafy vegetables like spinach, fenugreek, curry leaves and coriander leaves are also good sources of calcium.

**(b) IRON****Functions**

Iron is a very important mineral. It is needed for the formation of a compound called haemoglobin in our blood which helps in carrying oxygen to all parts of the body. Do you know in adolescence (10-19 years) iron requirement of the body increases? The need for iron increases specifically for girls. We must include iron rich foods in our daily diet.

**Fig. 2.2****Sources**

- Green leafy vegetables like spinach, mustard leaves, fenugreek, mint, etc.
- Whole cereals and legumes
- Liver, heart, kidney and egg yolk.
- Gur/jaggery
- Dates and pomegranate.

**Notes**



Notes



#### ACTIVITY: 2.3

Amla is the richest source of iron. It is a very economical source to enhance the iron content in our food and can be eaten on a regular basis. List two food items made of amla.

#### (c) IODINE

Iodine is required for normal functioning of our brain and the growth of our body. **Deficiency of iodine leads to a disease called cretinism.**

#### Functions

Iodine is needed for proper functioning of thyroid gland in our body.

#### Sources

- Sea foods like fish and sea weeds.
- Plants which grow in iodine rich soil.
- Salt fortified with Iodine.

**Cretinism** is a condition of severely stunted physical and mental growth.



Fig.2.3

**Food fortification or enrichment** is the process of adding micronutrients to food. This has been explained later in lesson 4.




#### 2.3.5 VITAMINS

These are the substances which are required in very small amounts in our diet, but are essentials for proper functioning of the body. Vitamins cannot be produced by the body, therefore must be present in our diet. Vitamins are classified into two groups on the basis of their solubility in fats and water.

- **Fat soluble vitamins** are those vitamins which are soluble in fat e.g. Vitamin A, D, E, and K.
- **Water soluble vitamins** are those vitamins which are soluble in water e.g. B-complex vitamins and vitamin C.

You must know the functions and sources of vitamins. Table 2.1 lists vitamins, their functions and sources.

Table 2.2


Vitamins	Functions	Sources	Deficiency Disorders
<b>Fat Soluble Vitamins</b>			
Vitamin A	<ul style="list-style-type: none"> <li>• For better vision specially in dim light</li> <li>• Makes our skin healthy</li> <li>• Necessary for normal growth and development</li> <li>• Provides resistance to infection.</li> </ul>	Vegetables, fruits (especially in dim light yellow ones), milk, cheese, eggs yolk, butter, ghee, liver green leafy 	Night Blindness
Vitamin D	Works with minerals - phosphorus and calcium to make teeth and bones strong	Oily fish, milk, cheese, butter, ghee, etc. Our body can make Vitamin D when the skin is exposed to sunlight. 	Rickets in children and Osteomalacia and Osteoporosis in adults
Vitamin E	Prevents tissue breakdown. It is an antioxidant	Whole pulses and cereals 	
Vitamin K	Needed in the process of clotting	Green leafy vegetables	Avitaminosis



Notes



Notes

Water Soluble Vitamins			
B Complex	Helps the body to use energy Keeps the digestive system healthy	Pulses, whole grains cereals, wheat, rice etc. 	
Vitamin C	All the body cells need Vitamin C because it helps to hold cells together. It also keeps our teeth and gums healthy.	Fruits, leafy vegetables, potatoes, sprouted grains, guava. and amla are the richest sources	Scurvy

\*The details of some of these are discussed later in the chapter



### INTEXT QUESTIONS 2.2

Choose the correct option to complete the statements given below.

1. i. Calcium is needed for
  - (i) improving the taste of food.
  - (ii) healthy bones
  - (iii) strong teeth
  - (iv) clotting of blood
- ii. Richest source of iron is
  - (i) iodized salt
  - (ii) milk
  - (iii) leafy vegetables
  - (iv) wheat
- iii. Fortified salt is rich in
  - (i) iron
  - (ii) iodine





Notes

- (iii) calcium
- (iv) all the above
- iv. Person suffering from iodine deficiency must eat/drink
- (i) sea food
- (ii) root and tubers
- (iii) milk products
- (iv) fibre rich food
- v. Movement of muscles definitely requires presence of
- (i) iodine
- (ii) iron
- (iii) calcium
- (iv) all the above.
2. Tick Mark (✓) the fat soluble vitamins from the choices given:
- (a) Vitamin A
- (b) Vitamin B
- (c) Vitamin C
- (d) Vitamin D
3. Which vitamin will you get from the following food items?
- (i) amla..... (vii) sprouted pulses.....
- (ii) carrot..... (viii) sunlight on skin.....
- (iii) cereals..... (ix) milk.....
- (iv) eggs..... (x) butter.....
- (v) fish oil..... (xi) pumpkin.....
- (vi) green leafy vegetables..... (xii) liver.....
4. Fill in the blanks:
- (i) Vitamin D can be produced by the ..... in the presence of .....
- (ii) One function of Vitamin A is to keep our..... healthy.
- (iii) To keep our gums and teeth healthy we must take .....
- (iv) The vitamin which makes bones and teeth strong is .....



Notes

## 2.4 DIETARY FIBRE

Shruti's grandmother is an active and cheerful old lady. However, she was uncomfortable as she had not passed stool since last three days. She realized that in the last two-three days she had not been taking enough fresh fruits, vegetables and water. Fresh fruits and vegetables contain fibre that helps in relieving constipation

Constipation refers to bowel movements that are infrequent and/or hard to pass.

Dietary fibre, also known as roughage, is the indigestible carbohydrate present in food. Fibre is present in foods of plant origin only.

Foods rich in fibre are:

- whole wheat flour, dalia (porridge)
- fruits such as guava, apples, pineapples, banana
- whole pulses like lentil, rajmah, bengal gram
- vegetables such as peas, beans, carrots, cauliflower, green leafy vegetables

When foods are processed there is loss of fibre, vitamins and minerals. For example unpolished rice has higher fibre content than polished rice. Can you think of some other examples? Wheat flour is something many of us consume everyday. Often people sieve the flour and then make chapatias out of it. In the process, wheat bran which is rich in fibre is removed. Thus, reducing the fibre content of the flour. The skin of fruits and vegetables is also rich in fibre.

Fibre performs many essential functions in the body;

- It increases the bulk and softness of stool, thus making it easier to pass;
- Foods which contain fibre require more chewing and thus have a high degree of satiety.

Satiety means being satisfied especially when referring to eating. It prevents over eating.

High fibre diet helps in the prevention of:

- Constipation
- Cancer of the large intestine
- Diabetes
- Obesity



### ACTIVITY 2.4

Recall what did you eat yesterday and list the fibre rich foods included in your meals.

---



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Notes

## 2.5 WATER

Mohan's mother was travelling to Jaipur in Rajasthan in the month of May for some work. She packed two bottles of water along with her lunch. Mohan asked his mother about the necessity of carrying the water bottles. Mother explained that during hot weather, our body sweats a lot. This results in depletion of body water. We should drink plenty of water to replenish the loss. Body water need can also be fulfilled by beverages like buttermilk (*lassi*), milk, fruit juices etc. On the other hand, our body's need for water is less during winters.



Fig.2.4

Now Mohan understands that water requirement vary with the season. On an average, one should drink about 8-10 glasses of water everyday.

Water is not a nutrient, yet it is very important for our body because;

- It is a constituent of all body fluids.
- It helps to digest food and takes the nutrients from the food to the different cells of your body.
- It helps to keep our body temperature constant. In summer, when we sweat, extra heat is removed from the body.
- It helps to remove the waste products from your body in the form of urine.



### ACTIVITY 2.5:

Observe the colour of your urine when you do not drink water for about 6-8 hours and then when you drink water every  $\frac{1}{2}$  hour. Answer the following.

Interval between water intake	Colour
Water after 6-8 hours (when you pass urine for the first time in the morning)	
When you drink water after every $\frac{1}{2}$ hour	



Notes



**INTEXT QUESTIONS 2.3**

State whether the following statements are true or false, if true, give the justification:

- (i) True/False    Fiber is not essential in the diet.  
.....
- (ii) True/False    We must remove the outer skin of apples before eating.  
.....
- (iii) True/False    Fiber helps in the prevention of cancer.  
.....
- (iv) True/False    Fiber makes fat.  
.....
- (v) True/False    Fiber is found in tomatoes and grapes.  
.....
- (vi) True/False    Fiber increases bulk of the food.  
.....
- (vii) True/False    You will lose weight if you do not eat fibre.  
.....

**2.6 DEFICIENCY DISEASES**

Geetika wants to lose weight and often skips her meals. Her teacher complained that she is not alert and attentive in the class. One day, she fainted during morning assembly. Her mother was called by the teacher. The mother explained that for the last four months, Geetika was eating very little. She had become very weak. The teacher advised Geetika that by reducing her food intake, she was not getting adequate nutrients essential for her body. This was causing weakness. This would have detrimental effect on her physical, mental and emotional well being.

Geetika became aware of the importance of a nutritious diet for her overall well being. She realized that each nutrient has a specific role in keeping us healthy.

If you do not take these nutrients in the diet, do you know what will happen? Yes, you are right. The body will not be able to function properly and you will fall sick. Interestingly, if you start eating the food with the missing nutrients, the symptoms of the disease start disappearing.

This is the reason why such diseases are called **deficiency diseases**. The deficiency is caused due to shortage or absence of certain nutrients in our daily diet. Deficiency disease is a condition which occurs in the body when a particular nutrient in our daily meals has been missing for a long period. Often the deficiency is reversible if the missing nutrient is detected early and missing nutrient is adequately replaced.

Children and old people are more prone to deficiency diseases. Let us now study some common deficiency diseases.

### 2.6.1. Protein Energy Malnutrition (PEM)

When there is lack of proteins and energy in the diet for a long time a deficiency disease known as **Protein Energy Malnutrition (PEM)** occurs. This deficiency occurs mainly in children below 5 years of age. In our country PEM is widely prevalent in children belonging to poor and underprivileged communities. When the child is suffering from PEM, often diarrhea and other infections occur due to low body resistance to diseases.

PEM is of two types-

- (1) When the protein intake is deficient but calories or energy from carbohydrates are sufficient, the condition is known as **Kwashiorkor**. The child develops a pot like belly due to this deficiency diseases.



Fig. 2.5 A child suffering from Kwashiorkor

- (2) When protein and energy both are insufficient for a prolonged period then a disease condition known as **Marasmus** occurs. In both these conditions there is growth failure, child does not grow to full potential.

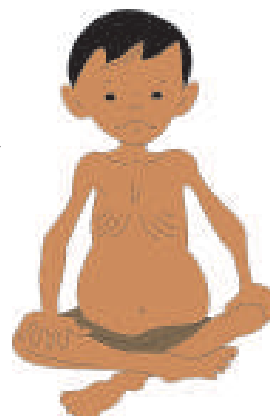


Fig. 2.6 A child suffering from Marasmus



Notes



Notes

- (3) A child loses weight and becomes thin when there is deficiency of carbohydrates in the diet. Yet another kind of malnutrition is consumption of excessive calories. If there is excess of carbohydrates in the diet then the person becomes **obese** or fat. This is the condition mostly found in the well-to-do families. This is increasingly becoming a problem in urban areas where more and more people are leading inactive or more sedentary lives.



**Fig. 2.7 A child suffering from Obesity**

### 2.6.2. Vitamin A deficiency

Vitamin A deficiency is also found mainly in children. Pregnant women are also susceptible to this deficiency. Since Vitamin A is required for growth and development of the body. Lack of this vitamin results in stunted growth. Deficiency of Vitamin A also leads to dryness of conjunctiva (the white portion of the eye). At a later stage the conjunctiva may become wrinkled. The cornea (black part of eye) may also become cloudy. At this stage the problem of night blindness sets in, i.e., the child cannot see in dim light. Improvement in the condition can occur if a diet rich in Vitamin A is taken. You would be sad to know that more than 40,000 children in India become blind every year because of vitamin A deficiency. This could be easily prevented.

### 2.6.3. Iron deficiency anaemia

Iron deficiency anaemia is another major nutritional problem in our country. It is found in women and children in all income groups.

Major causes of anemia in our country are:

- inadequate intake of dietary iron or its poor absorption
- hook worm infestation mainly found in young children and adults
- excessive blood loss due to accidental injury, during child birth in women

You have already studied that iron is required for hemoglobin formation. In iron deficiency anemia, there is not enough haemoglobin in blood, therefore, the supply of oxygen to the cells is reduced. When this happens, we feel tired, restless and fatigued all the time. Therefore, we cannot work to our full potential.

### 2.6.4. Vitamin B Complex deficiency

Low intake of Vitamin B rich food in our diet is the main cause of this deficiency. Common symptoms of vitamin B complex deficiency are sore mouth, sore tongue, redness of the tongue and cuts at the angles of mouth.

Some accompanying symptoms like diarrhea and dysentery may also occur. One does not feel hungry and has difficulty in digesting food. In earlier times a disease known as Beri Beri was quite prevalent in areas where polished rice was the staple food. This deficiency is no longer seen now. Consumption of brown rice instead of white rice prevents the occurrence of this disease.

### 2.6.5. Vitamin C deficiency

In the absence of fresh fruits and vegetables in our diet often deficiency of Vitamin C occurs. It is called **Scurvy**. Our gums, bones and teeth become weak. Gums swell up and start bleeding. Wounds also do not heal quickly. The only solution is to include fresh fruits and vegetables in our diet on regular basis.

### 2.6.6. Iodine Deficiency Disorders (IDD)

Iodine is very essential for the proper functioning of the body. Deficiency of iodine leads to a number of disorders like goitre, cretinism, mental retardation and deaf mutism.

Goitre is generally seen among adolescents, young adults and children. More females than males are affected. A severe deficiency of iodine during prenatal life may lead to Cretinism (severe mental retardation).

In India there are certain regions where goiter is quite prevalent areas. The foothills of Himalayas and the areas where there are frequent floods are the most goiter prone areas. Recent surveys have shown that areas in Andhra Pradesh, Madhya Pradesh, Maharashtra, Bihar, Gujarat and Kerala also have regions where goiter is prevalent.

The only solution to this problem is to eat **iodized salt**. For this reason our Government has banned the used of non-iodized salt.



Fig. 2.8. : A woman suffering from Goitre

**Remember:** Store iodized salt in air tight containers to prevent loss of iodine.

Cover and cook food to which iodized salt has been added.



Notes



Notes

**INTEXT QUESTIONS 2.4****I Put a tick mark (✓) against the right answer.**

1. Deficiency diseases are those that occur in your body because of
  - (i) less water
  - (ii) absence of a nutrients
  - (iii) absence of exercise
  - (iv) presence of disease germs
2. Vitamin A is important because it
  - (i) prevents night blindness
  - (ii) keeps the skin healthy
  - (iii) prevents anaemia
  - (iv) prevents constipation
3. Haemoglobin formation is reduced in
  - (i) scurvy
  - (ii) anemia
  - (iii) goiter
  - (iv) night blindness
4. If you take excessive amount of carbohydrates, you will become
  - (i) underweight
  - (ii) anaemic
  - (iii) obese
  - (iv) Marasmic
5. An example of a food which prevents vitamin A deficiency is
  - (i) spinach
  - (ii) lemon
  - (iii) banana
  - (iv) potato



## 2.7 NEED FOR EATING VARIETY OF FOOD

Now you know the different nutrients and also the functions they perform in our body. You also know what happens when these nutrients are missing in our diet.

So what should we do to remain healthy?

We should eat food which provides all the nutrients. As you have seen, there is no single food which gives all the nutrients. You must therefore, eat variety of food items so that our body gets all the nutrients in the required amounts and we do not suffer from deficiency diseases.



### ACTIVITY 2.6:

Examine your diet and check if you are receiving all the nutrients. If yes, mention nutrients you are getting in food items included in each meal in the table provided below. If not, modify your existing diet to include food items that will give you the required nutrients.

<i>Existing diet</i>	<i>Food Intake</i>	<i>Nutrient Intake</i>
Breakfast		
Lunch		
Dinner		

Modify the diet, if needed;

<i>Modified diet</i>	<i>Nutrient Intake</i>	
Breakfast		
Lunch		
Dinner		



Notes



Notes

## 2.8 RELATIONSHIP BETWEEN NUTRITION AND HEALTH

Knowledge of nutrition helps us to know the type and quantities of different foods to be taken in the diet in order to maintain good health. The World Health Organization (WHO) has defined health as “The state of complete physical, mental and social well being and not just the absence of disease”. Hence, to be healthy in the real sense, one must not only eat right but also have a healthy mental and social outlook.



### WHAT YOU HAVE LEARNT

- Carbohydrates, proteins, fat, vitamins and minerals are essential nutrients for our body.
- Water is not a nutrient but is essential in our diet to maintain important body functions.
- Sources of proteins are milk, cheese, egg, meat and pulses.
- Calcium and vitamin D are required to keep the bones and teeth healthy.
- Fresh vegetables and citrus fruits are rich in vitamin C.
- Green leafy vegetables, whole cereals, pulses and dates are good sources of iron.
- Deficiency of iron causes anaemia.
- Good sources of vitamin A are green leafy vegetables, milk and milk products, egg, butter and ghee.
- Deficiency of vitamin A causes night blindness and dry and rough skin.
- Ignorance is the main cause of deficiency diseases.



### TERMINAL EXERCISES

1. List the four important functions of food?
2. Recommend three energy giving foods for an active school going child.
3. Justify the need of extra calcium and iron in diet of adolescents.
4. Write names of any four deficiency diseases and mention one symptom of each.
5. Match the nutrient given in column A with their functions in column B:

Column A	Column B
i Vitamins and minerals	Body building and repair of tissues
ii Proteins	Energy giving
iii Carbohydrates	Protection from the diseases

6. Complete the table given below :

S. No.	Name of nutrient	Main function	Sources		Deficiency Disease
			1	2	
1	Vitamin B				
2	Vitamin C				
3	Vitamin D				
4	Calcium				
5	Iron				
6	Iodine				
7	Water				



Notes



## ANSWERS TO INTEXT QUESTIONS

### 2.1

1. Refer to text

2. (i) b (ii) c (iii) a
3. (a) Fat (b) Fat (c) Fat (d) Protein  
 (e) Protein (f) Protein (g) Protein, fat (h) Carbohydrates  
 (i) Carbohydrates (j) Protein (k) Carbohydrates (l) Fat
4. (a) Fat (b) Protein (c) cereal (d) potato

### 2.2

1. i. (iii) ii. (iii) iii. (ii) iv. (i) v. (iii)
2. Vitamin A and Vitamin D
3. (i) Vit. C (ii) Vit. A (iii) Vit. B (iv) Vit. A, Vit. B  
 (v) Vit. A, Vit D (vi) Vit. A, Vit. B (vii) Vit. C (viii) Vit. D  
 (ix) Vit. A, (x) Vit. A, Vit. D (xi) Vit. A (xii) Vit. A
4. (i) body, sunlight (ii) eyes (iii) Calcium (iv) vitamin B

### 2.3

- (i) F, Makes digestive system healthy (ii) F, apple skin is rich in fibre  
 (iii) T (iv) F, makes you fit and healthy (v) T  
 (vi) T (vii) F, Fibre gives a feeling of satiety and prevents overeating.

- 2.4 (1) ii (2) i (3) ii (4) iii (5) i



# FOOD GROUPS

All of us eat different types of food everyday. There may be rice, dal, vegetables, milk, curd and fruit. We already know that all of these food items provide us nutrients, required by our body for energy, body building, repair of tissues and protection from diseases. Can you list the various nutrients in our food? Yes, you are aware that these are proteins, carbohydrates, fats, vitamins and minerals.

In the previous lesson we have learnt that some food items are rich in protein while others may be rich in carbohydrates, fats, vitamins or minerals. For example rice is a good source of carbohydrates while dal is a good source of protein.

So, it is necessary to select different food items so that our body gets all the nutrients it requires to remain healthy. You must be wondering what a healthy meal is. How can we make the right selection of food in our meals? In this lesson, you will learn that selection of right food which makes a balanced meal, results in good health.



## OBJECTIVES

After studying this lesson, you will be able to :

- classify food items into different food groups;
- state the major nutrients and group the food items with similar nutrients for food exchange;
- understand the food pyramid for choosing balanced meals;
- recognize the importance of meal planning and associated factors, and
- plan balanced meals for the family to suit every member's needs.

## 3.1 FOOD GROUPS

You have already learnt about the nutrients, their functions and food sources. Now you must be wondering what are food groups. Based on the functions that are

performed by various types of food items available, they can be broadly divided into three groups as presented in table 3.1.




Table 3.1

	Function	Nutrient	Food
1.	energy giving food	carbohydrates and fats	cereals, fats, sugar
2.	body building food	proteins	pulses, milk, meat, chicken
3.	regulatory and protective foods	vitamins and minerals	fruits and vegetables

There are several types of food items and each type can not be studied individually. Therefore, they have been categorized into different food groups. This grouping has been done on the basis of the nutrient content of each food. Let's learn about various food groups

### 3.1.1 The five food group system

Table 3.2 Food Groups





Food Groups	Food	Major nutrients present
cereals, grains and their products	rice, wheat, <i>ragi</i> , <i>bajra</i> maize, <i>jowar</i> barley, rice flakes, wheat flour etc. 	carbohydrates, proteins, vitamin B, iron, fibre
pulses and legumes	bengal gram, black gram, green gram, red gram lentil (whole as well as <i>dals</i> ), cowpea, peas, <i>rajmah</i> , soyabean, soya nuggets, etc. 	carbohydrates, protein, vitamin B, iron, fibre
milk, egg and meat products	milk, curd, <i>paneer</i> , cheese, <i>chhachh</i> , <i>lassi</i> , buttermilk, skimmed milk.  meat – chicken, liver, fish, egg, meat.	proteins, fat, vitamin B, calcium, vitamin A protein, fat, vitamin A



Notes



Notes

<p>fruits and vegetables</p>	<p>fruits viz. mango, guava, orange papaya, banana, sweet lime, water, apple and vegetables viz. correct, pumpkin, tomato etc.</p>  <p>green leafy vegetables like amaranth, spinach, coriander leaves, mustard leaves and fenugreek leaves and fruits like amla and pomegranate.</p>	<p>vitamin A, vitamin C, fibre</p>
	<p>other vegetables: brinjal, lady finger, capsicum, beans, onion, drumstick, cauliflower, potato etc.</p> 	<p>vitamin A, calcium, iron, fibre</p> <p>carbohydrates and fibre</p>
<p>fats and sugar</p>	<p>fats: butter, ghee, hydrogenated oil, ground nut, mustard, coconut oil</p>  <p>sugars sugar, jaggery, honey</p> 	<p>carbohydrates, fats</p> <p>carbohydrates</p>

All cereals like rice, wheat, *ragi*, *bajra*, maize etc. give the same nutrients that is carbohydrates, proteins, vitamin B, iron and fibre, whereas all pulses contain protein, carbohydrates and vitamins. Similarly fruits and vegetables give vitamins and minerals while milk, egg and meat products are comparable in terms of their nutrient content. Therefore, if we substitute one food for the other in the same group, we will get almost the same nutrients. So it will be beneficial if we learn more about each food group.

## 3.2 CHARACTERISTICS OF FOOD GROUPS

### 3.2.1 Cereals

Cereals like rice, wheat and maize form the main component of our diet. As they are consumed in large quantities, they become the main source of energy in our diet. Whole cereals and grains contain considerable amount of fibre which, though not a nutrient, has a great importance in maintaining a healthy digestive system.

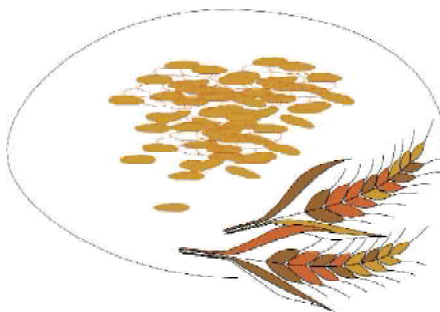


Fig.3.1 Cereals

In addition to this, fibre plays a crucial role in preventing several lifestyle diseases. You will learn about them later. We should eat cereals in the unrefined form to get sufficient amount of fibre. Cereals are also rich in vitamin B complex. This gets lost when cereals are refined, e.g. *maida* and polished rice. So our diet should have whole wheat flour instead of *maida* and home pounded or parboiled rice instead of polished rice. *Daliya* and brown rice should also be included in our meals.

You also know that most of us always eat cereals along with pulses, curd, milk, meat and vegetables. For example, *dal-rice*, *khichri*, *sambar*, *idli*, *dosa*, *dal-bati* and *biryani*. Can you guess why? Yes, because when cereals are combined with pulses or vegetables, the nutritive quality of our meal improves.

### 3.2.2. Pulses and legumes

Pulses and legumes like *arhar*, *urad*, *rajmah* and bengal gram, green gram *dal* are the major source of protein in Indian diets especially for vegetarians. They have a appreciable amount of vitamin B, calcium and iron.

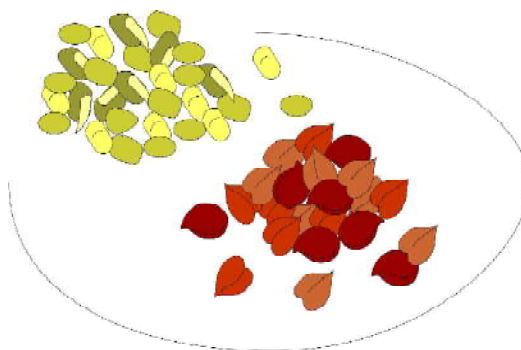


Fig. 3.2 Pulses and Legumes

You have already learnt that protein quality of pulses can be improved by combining them with cereals.

Vegetarians should be careful in including both pulses and cereals in every meal to obtain optimum quality of protein.

Soya nuggets can be added for variety in the food.



Notes



Notes

### 3.2.3 Milk, egg and meat products

All of us know that milk is considered to be the best and complete food for small children. Do you know why? Yes, because it is a rich source of protein, fat, vitamin A and calcium. Curd and *paneer* also contain all the nutrients but skimmed milk contains very little fat.

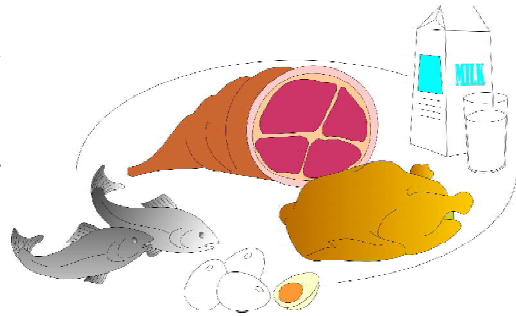


Fig. 3.3 Milk, egg and meat products

You must have seen that while making *paneer*, we drain away the water and hence water soluble nutrients are also drained off. Therefore, cheese and *paneer* have mainly protein as a nutrient. Remember this water can be used in cooking *dal* and kneading dough for *chapati*.

Eggs are a rich source of almost all nutrients except vitamin C. Eggs contain proteins of excellent quality therefore they are specifically recommended for growing children, pregnant women and lactating mothers.

Meat products include meat, chicken and fish. They are a rich source of high quality protein, vitamin A and vitamin B. As you know that a large percentage of population in India is vegetarian, it is advisable that they consume a combination of cereals, pulses and milk products. This combination is comparable with animal foods in terms of protein quality. Many of our traditional food combinations such as *khichri*, *dal-rice*, *dal-roti*, *idli-sambar*, *dosa-sambar* along with curd and butter milk are excellent examples of high protein quality meals. We must continue to value these traditional food combinations and avoid junk food.



### INTEXT QUESTIONS 3.1

1. Match the food groups in column A with foods in column B:

	Group A		Group B
1.	cereals	(i)	<i>rajmah</i> and soyabean
2.	pulses	(ii)	papaya and guava
3.	milk products	(iii)	<i>ragi</i> and <i>bajra</i>
4.	fruits	(iv)	brinjal and carrot
5.	vegetables	(v)	<i>paneer</i> and curd
		(vi)	ghee and butter



2. State whether the following statements are true or false. Give reasons for the same.
- Cereals are the main source of energy in our body. True/False  
because \_\_\_\_\_ .
  - We should eat cereals in refined form. True/False  
because \_\_\_\_\_ .
  - Milk is considered the best food for small children. True/False  
because \_\_\_\_\_ .
  - We should not consume a combination of cereals and pulses. True/False  
because \_\_\_\_\_ .
  - Pulses are specially recommended for vegetarian people. True/False  
because \_\_\_\_\_ .



Notes

### 3.2.4 Fruits and Vegetables

**Fruits:** Citrus fruits such as oranges and lemons are rich in vitamin C. Amla and guava are cheap and good sources of this vitamin. Yellow fruits like mango, papaya contain carotene which is converted into vitamin A in the body. We all know that vitamin A is very important for our eyes. Banana is a good source of iron, calcium and carbohydrates. Pomegranate is rich in iron. All fruits contain plenty of fibre, which helps in bowel movement. Dried fruits like raisins, figs, walnuts and almonds are rich in fats, iron, calcium and fibre. Locally available fruits should be preferred by us as they are fresh and economical.

**Green leafy vegetables:** Green leafy vegetables such as spinach, fenugreek, soya, *amaranth (chulai)* and mint are rich in carotene, calcium, iron and vitamin C. These are abundantly available in rural areas. We can easily grow them in our kitchen garden. It is very important to include them in our daily meal.

**Others Vegetables:** Potato, sweet potato, turnip, raddish and carrots are some examples of roots and tubers. These vegetables are a good source of carbohydrates. We all know that potato is considered to be the master of all vegetables. It is added in most of the vegetables. Do you know that potato also contains vitamin C along with carbohydrates?

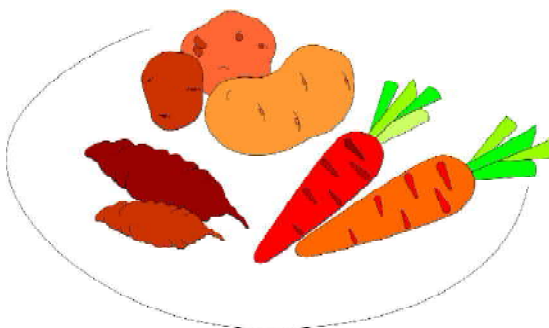


Fig. 3.4 Roots and Tubers



Notes

Now let us discuss carrots. Carrots are rich in carotene and provide colour and taste to a meal. You must have eaten sweet and tasty “*Gajar Ka Halwa*”, which is a very popular sweet dish made of carrots. Other vegetables like lady's finger, beans, brinjal, gourds, tomato, cauliflower and capsicum provide variety, taste, colour along with fibre to the daily meals. Some vegetables also contain an appreciable amount of vitamin C and minerals such as iron, calcium, zinc, sodium and potassium.

**3.2.5 Fats and sugar**

Butter, ghee, oils like mustard oil, groundnut oil, coconut oil and soya oil are the common types of fats consumed in India. Fats are a concentrated source of energy. Some amount of fat is needed in daily diet because they supply essential fatty acids. Besides this, some vitamins like A, D, E and K are fat soluble and important for our body.

Sugar, jaggery and honey are sweetening agents and provide carbohydrates to the body. Do you know that jaggery is better than sugar? Jaggery contains iron which is important for formation of Red Blood Cells (RBC) in our body. We should try to avoid excessive consumption of sugar or jaggery in our daily diet. Why? Extra sugar eaten by us gets converted into fat and gets accumulated in the body and makes us obese.



**INTEXT QUESTIONS 3.2**

Help Jenita, Jaspreet and Victor choose their breakfast from the two meal choices given below. Select the more nutritious meal out of the two and give reasons for the same.

Name	Meal Option I	Meal Option II	Reasons
Jenita	boiled egg and toasted bread	toasted bread with jam	
Jaspreet	stuffed potato <i>paratha</i> and butter and whole milk curd	fenugreek, <i>paratha</i> , butter, milk	
Victor	mixed vegetable dalia, curd	<i>puri</i> and potato <i>sabji</i> ,	

**3.3 FOOD EXCHANGE**

Now, after learning in detail about each food group, we can conclude that similar food items have been placed together in one food group. Therefore, if we substitute one food for the other in the same group, we will be able to get almost the same nutrients. For example, Guddi takes one glass of milk and *roti* in breakfast, Arul eats

*poha* and one *katori* of curd whereas Sugna eats one fresh cheese (paneer) sandwich. Comment on their food selection. Yes, all of them take milk or its product along with cereals and get approximately the same nutrients. So we can say that substitution of one food item with the other within a group in such a way that the nutrients provided by them are approximately the same is called **Food Exchange**.



Notes

### 3.4 PYRAMID OF FOOD GROUPS

In order to assist in selecting food items from a food group a food pyramid has been developed.

Pyramid of food groups clearly indicates that we should consume food from each of the five food groups to ensure good health. This also tells us to include food items which are at the top of the food pyramid such as fats and sugar in less quantity as compared to cereals and pulses which are at the bottom of the pyramid. Use of food pyramid not only ensures good health but also helps in planning a balanced diet and facilitates selection of alternate foods.

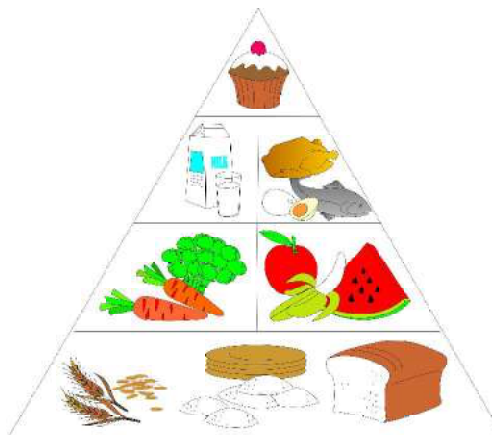
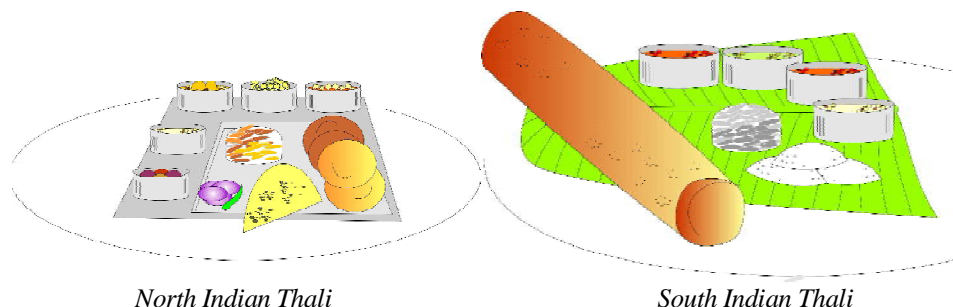


Fig.3.5 Food Pyramid

### 3.5 BALANCED DIET

Now that you are familiar with the food groups, let us learn about a balanced diet. In a meal, if we include food items from all the five food groups then our body will be able to get all the nutrients collectively, such a meal is called a **Balanced Diet**. A balanced diet is one which contains all the nutrients in adequate quantity to meet the body's requirements and some amount of nutrients are stored in the body to withstand short period of low intake.

Assess your family meals using the food pyramid to find out whether your meals are balanced or not. Do you realize how much effort your parents make to serve balanced meals to the family? For every meal they plan, purchase, prepare and cook, they try to include most of the food groups.



North Indian Thali

South Indian Thali

Fig. 3.6



If you see the contents of each thali in fig 3.6, you will observe that a traditional Indian meal includes food items from most of the food groups. This is the result of collective wisdom of our society and we should adhere to it.

### 3.6 IMPORTANCE OF MEAL PLANNING

Most of us usually take three meals a day. these are breakfast, lunch and dinner. In between the meals we also eat snacks. Our body gets the required nutrients from these meals of the day. Therefore it is very important that these three meals should include food items from all the five food groups. Thus we can say that **meal planning** is a process of making a plan about what we should eat each day in every meal.

#### 3.6.1 Meal planning requires:

Food management skills such as-

- skills to ensure variety in food by using nutritious, locally available, fresh, seasonable and affordable food;
- knowledge to fulfil the nutritional needs and requirement of all the family members;
- ability to use under utilized foods such as leaves of root vegetables like carrot, radish, turnip and beetroot;
- ability to creatively use left over food items in the kitchen;
- sensitivity to include dishes according to likes and needs of every family member, and
- goal setting, planning, problem solving and decision making to save, time, energy and money to serve balanced meals.

### 3.7 FACTORS AFFECTING MEAL PLANNING

Every home maker along with using the above mentioned meal planning skills, has to consider many other important factors, such as:

**Age:** You would have seen that people eat according to their age. For example, a baby drinks only milk till about six months, a small child eats *dalia* and *khichri* in small quantities. Adolescents eat a variety of food and in more quantity as compared to children. Similarly old people eat soft and easy-to-digest food in small quantity. As the nutritional requirements vary with age so the type of food, its quantity and quality also change.

**Sex:** You must have noticed that your father can do more heavy physical work as compared to your mother. Do you know why? Yes, because a man's body is more muscular than a woman's body. Hence a man requires more protein and energy than

a woman. So, while planning a meal, it is important to keep in mind the sex of the family members.

**Seasonal availability:** Some vegetables like radish, fenugreek, carrot and peas are available in the winter season while other vegetables like bitter gourd, bottle gourd and lady's finger are available in summer. As you know seasonal food items are fresh, nutritious, less expensive and easily available than the off season food items. Therefore, seasonal food should be preferred while planning meals.

**Weather:** All of us eat more in winter than in summer. What do you think could be the reason? This is because in winters our body needs more energy to maintain the body temperature. We enjoy eating peanuts, peanut chikki, sesame chikki and dry fruits during winters. These are energy rich foods and help us maintain body temperature.

**Occupation:** Some people like labourers, rickshaw pullers, sports persons and farmers do more manual work as compared to people like businessmen, shopkeepers, and teachers. So they require more carbohydrates and proteins. We must consider the nature of occupation of each family member while planning meals.

**Physiological needs:** While planning a meal, physiological needs of individual family member should be kept in mind e.g. pregnant and lactating mothers require more nutrients. A growing adolescent needs more protein and energy rich food. An old person needs a diet which is light and easy to digest.

**Economic considerations:** Income of a family has a direct impact on meal planning. The amount of money available influences our choice of food quantity and quality in a meal. Do you know there are many ways in which one can plan balanced meals without increasing the budget. For example, use the less expensive nuts such as groundnuts instead of cashewnuts and almonds; soy nuggets instead of *paneer* and guava instead of an orange.



### INTEXT QUESTIONS 3.3

1. Give one reason for the following statements :
  - (i) Shyam needs more protein and energy than Reena  
because \_\_\_\_\_ .
  - (ii) Nagma includes seasonal fruits and vegetables in her menu  
because \_\_\_\_\_ .
  - (iii) Jenny's grandmother should eat mixed vegetable *upma* in breakfast  
because \_\_\_\_\_ .



Notes



**Notes**

(iv) Vijay is a farm labour. He needs more food as compared to Arun, who works in an office

because \_\_\_\_\_ .

(v) Seema is a mother of a two month old baby. She needs more food

because \_\_\_\_\_ .

2. Fill in the blanks with appropriate words indicating more healthy food practices.

1. Mary can eat \_\_\_\_\_ instead of an orange to get vitamin C.

2. Nagma can prepare stuffed \_\_\_\_\_ paratha instead of stuffed potato paratha.

3. Instead of cashewnut ladoos, Rita can prepare ladoos using \_\_\_\_\_ nuts.

4. Jaspreet can use \_\_\_\_\_ instead of sugar while making chikki.

5. Meera can prepare \_\_\_\_\_ curry instead of paneer curry for getting protein.

**3.8 FAMILY MEALS**

After learning about various factors affecting meal planning, you can now certainly list the factors affecting the meal planning of your family. These factors may vary from family to family. However, the most important point is that everyone needs a balanced meal. A meal which contains all the essential nutrients that are required by the body i.e. protein, carbohydrates, fats, vitamin A, B, C, D, iron, calcium and iodine. So, while planning a meal for your family, you will have to make sure that every meal has all essential nutrients in it. Now, you must be wondering, how you will do this. Yes, you are right. You can include one food item from each of the five food groups in every meal. Take an example of a sample menu for Sarita and Lalitha who are girls of the same age.

**Table 3.3**

S. No.	Five Food Groups	Meal 1 (Sarita)	Meal 2 (Lalitha)
(i)	cereals	chapati	rice
(ii)	pulses	arhar dal	urad dal
(iii)	milk, eggs and flesh foods	paneer curry	chicken curry

(iv)	fruits and vegetables	<ul style="list-style-type: none"> <li>• potato and beans <i>sabji</i></li> <li>• tomato and cucumber salad</li> <li>• guava</li> </ul>	<ul style="list-style-type: none"> <li>• potato and peas <i>sabji</i></li> <li>• tomato and cucumber salad</li> <li>• Orange</li> </ul>
(v)	oil, ghee and Sugar	used for cooking	used for cooking

Now, you can plan every meal of this type for your family. Do you know; this is known as **family meal** or the *thali meal* .



### ACTIVITY 3.1

Make a list of different food items included in the meals consumed in your family yesterday. Categorize these food items into the five food groups. Analyse and discuss whether your family ate balanced meals or not.

Previous day's diet

	Food items	Food group	Remarks
early morning			
breakfast			
mid morning			
lunch			
evening			
dinner			
post dinner			

Consider Sarita's family having members in different age groups, that is, parents, grandparents, an eight year old sister and eighteen year old Sarita herself. Now, you can understand that all the family members have different nutritional requirements. It is good to suggest certain modifications or adjustments in the family meal to meet every member's requirements. These adjustments are –

Sarita and her sister should be given a nutritious snack in between lunch and dinner. As both of them are in a rapid growth and development phase, they need more nutrients. Example; mixed vegetable *poha*, mixed vegetable and *chana dal upma* or *dalia* with vegetable and peanuts etc.

Sarita's grandparents are aged so they require less carbohydrates and fat as compared to Sarita's parents although the requirements for protein and other nutrients remain the same for both. A soft and well cooked high fibre meal is ideal for her grandparents. High fibre food and lots of water are suitable for her parents.



Notes

**Notes**

Thus, you have learnt how to make modifications and adjustments in the same menu for various family members to suit their individual needs. We are sure this has helped you to learn how to make modifications in your family meals as per the needs and requirements of all the members.

**WHAT YOU HAVE LEARNT**

In this lesson you have learnt about

- classification of foods into five food groups
- characteristics and nutrients present in each food group
- substituting one food for the other in the same group
- use of food pyramid in planning a balanced diet
- importance of meal planning
- factors affecting meal planning - age, sex, seasonal availability, weather, occupation, physical need of each family member, economic consideration.
- planning of balanced meals for the family to suit individual needs.

**TERMINAL QUESTIONS**

1. Explain the importance of classification of foods and list the five food groups.
2. Describe the term 'food exchange' with the help of examples.
3. Explain 'balanced diet' and 'meal planning' in your own words.
4. State the importance of meal planning.
5. Briefly explain three important factors that influence meal planning.

**ANSWERS TO INTEXT QUESTIONS****3.1**

- 1) 1. (iii)
2. (i)
3. (v)
4. (ii)
5. (iv)



- 2) (i) True  
because they are rich in carbohydrates .
- (ii) False  
because whole cereals contain fibre and form the bulk of our meals
- (iii) True  
because it is a good source of protein, fat, vitamin A and calcium.
- (iv) False  
because quality of protein improves when we combine cereals and pulses together.
- (v) True  
because pulses are a major source of protein in a vegetarian diet.

### 3.2

Jenita – Meal I because it has more protein rich food.

Jaspreet – Meal II because it is more nutritious (green leafy vegetable).

Victor – Meal I because it has more dietary fibre (*daliya*) and mixed vegetables.

### 3.3

1. (i) because men are more muscular than woman.
- (ii) because seasonal fruits and vegetables are more nutritious and less expensive.
- (iii) because aged person should eat soft and high fibre diet.
- (iv) Vijay does more physical activity than Arun.
- (v) because Seema is a lactating mother and she has to nurse the baby.
2. 1) guava
- 2) radish
- 3) peanuts
- 4) jaggery
- 5) soya nuggets





# METHOD OF COOKING FOOD

Cooking is being practiced since times immemorial. Do you know that the ancient man ate only raw food? Once a piece of meat fell into the fire accidentally and got roasted. The ancient man ate this piece of roasted meat and liked it. Thus began the process of cooking. It has evolved a lot since then. You find a variety of food items like roti, puri, parantha, rice, pulao, pulses, vegetable, salad, chutney, pickle, curd, butter milk, fruits, etc. You notice that boiled rice tastes different from zeera rice or pea pulao because these are cooked differently. Similarly, a chapatti tastes different from a puree or parantha, again because all these are cooked differently. Generally, vegetables like tomatoes, cucumber and fruits are best eaten raw while wheat, rice, pulses, potatoes and other vegetables must be cooked. Do you know why?

In this lesson you will get familiarized with the reasons for cooking food, different methods of cooking, their suitability to different foods and effect of these methods on food items.



## OBJECTIVES

After studying this lesson you will be able to do the following:

- explain the importance of cooking food;
- name and classify various methods of cooking food;
- elaborate on the process of each method of cooking;
- explain the effect of cooking on various nutrients present in the food;
- identify cooking practices that enhance or destroy the nutritive value of foods;
- evaluate procedures used in preparing and cooking food at home;

- convince those involved in cooking to bring about the needed changes in the *cooking process and*
- learn the importance of striking a balance between retaining the nutritive value of food and food preferences of family members.

## 4.1 IMPORTANCE OF COOKING FOOD

Think and make a list of reasons for cooking food.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Now read about these reasons in detail.

### (i) Cooking makes food easy to digest

When food is cooked it becomes soft and easy to chew and swallow. The juices that digest food are able to mix well with this softened food and carry out the job of digestion.

### (ii) Cooking improves the appearance, texture, colour, flavour, and taste of food

Have you noticed the change in colour of carrots, beet root, spinach, peas and other vegetables on cooking? They look brighter and more attractive. The brown colour of roasted roti or parantha or toasted bread or baked cake is very tempting. When we make roti or parantha the soft sticky dough changes into a crisp roti or parantha. Its smell and taste are very inviting, too. A raw potato is not tasty but a boiled or fried potato improves not only its taste but also brings change in its texture which is more appealing.

Addition of spices and condiments while cooking helps in improving the taste and flavour of food. You have seen how the addition of salt, chillies and/or herbs, influence the taste. Thus, cooking improves the colour, flavour, texture and taste of the food and therefore the acceptability of the food.

### (iii) Cooking of food adds variety to the our meals

You must have eaten potatoes cooked in different ways. Can you name some? Yes, potato pakora, potato chat, potato parantha, potato bhujia, potato curry, potato chips and so on. Can you list a few food items that can be made with wheat flour? Yes, parantha, puree, roti, bread, mathari, etc. You can state numerous examples of dishes





### Notes

that can be prepared using any one main ingredient. In other words we are saying that cooking helps in creating variety in the food served.

Think and write about three food preparations of your region which can be made using one main ingredient.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### (iv) Cooking helps to keep food longer

Do you know why we boil milk? Yes, if we do not boil milk it will curdle soon. Boiling of milk helps to kill micro organisms which spoil milk and thus makes it last longer. You must have noticed that wheat dough gets spoilt after some time but chapatties or bread made out of it can be kept for much longer time. We are sure you can quote many more examples of foods that have longer shelf life because these are cooked.

### (v) Cooking makes food safe

Micro-organisms are present in raw foods. Some micro-organisms are harmless while others are harmful. Micro-organisms that convert milk into curd are beneficial while those that cause disease like tuberculosis are harmful. Milk may contain bacteria that cause tuberculosis. These bacteria get killed when milk is boiled or pasteurized. Milk which is pasteurized can be consumed as it is. You already know the reason for this.

Pasteurization: In this process, milk is heated to a high temperature and then quickly cooled. The microorganisms in the milk are not able to withstand the sudden change in temperature and are destroyed.

Animal products like meat, fish, eggs and chicken are more likely to have harmful microorganisms and should be cooked thoroughly before eating. However, keeping the food for more than two hours at room temperature during summers can make it unsafe for consumption. Do you know why? You are right, microorganism can re-grow.



### ACTIVITY 4.1

Observe and list the changes in the colour, texture and taste of the following food items after they are cooked. Also note the method used for cooking them.



Notes

Food item	Colour, Texture and Taste		Method of cooking
	Before Cooking	After Cooking	
Spinach			
Rice			
Arhar/ toor dal			
Potato			
Egg			

## 4.2 CLASSIFICATION OF METHODS OF COOKING

Some food items have a lot of moisture (water) in them. Leafy vegetables, e.g., spinach and fenugreek have lots of moisture. These are cooked using methods that make use of this moisture. But food items like wheat, rice and pulses are low in moisture content. These are cooked by adding extra water. There are also methods which do not require any water while cooking. In fact these help in cooking and leaving the food crisp on completion. There are many methods of cooking food. You must be using many of these methods. Can you name some?

The methods of cooking are classified as given in table 4.1.

### Classification of Methods

**Table 4.1: Methods of Cooking**

Cooking by Moist Heat	Cooking by Dry Heat	Cooking by Frying in oil or ghee
Boiling	Baking	Deep frying
Simmering/Stewing	Roasting	Shallow frying
Steaming	Grilling	
Pressure cooking		



Notes

### 4.3 DESCRIBE METHODS OF COOKING

We are sure you can describe the methods of cooking that you often use while cooking food. Of these, the most common methods are likely to be boiling, frying and pressure cooking. We will now describe the procedure of each method of cooking along with precautions, its suitability to various foods, and its advantages and disadvantages. Check if you are following the same procedure.

#### 4.3.1. Cooking by moist heat

In this method, food is put into boiling water or cooked in the steam which comes out from the boiling water. Some common ways by which you cook food by moist heat are described here.

##### (i) Boiling

Boiling is a method by which food is cooked in adequate quantity of water. For example we boil potatoes, eggs, rice and vegetables. Usually green leafy vegetables such as cabbage, fenugreek and spinach are cooked without adding extra water. Vegetables such as green peas and green beans are boiled or cooked with a little water. Cereals such as rice and pulses are boiled in large amounts of water (1.5 to 3 times). Do you know why? Yes, you are right cereals and pulses need more water to cook as they are dry and they also need more time to cook. Vegetables take less water to cook as they have higher water content.

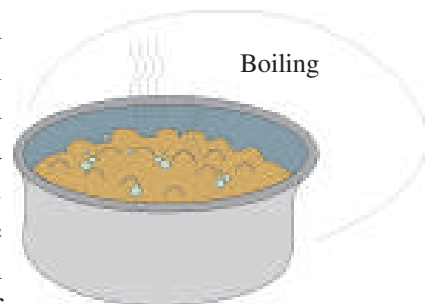


Fig. 4.1

Some points which must be kept in mind while boiling food are as follows:-

- wash the food thoroughly before boiling;
- first boil the water and then put the food;
- the water should cover the food completely;
- boil food in a pan which has a well fitted lid. This way the steam from boiling water will not go out from the pan and the water will not dry up. Food gets cooked (boiled) faster and fuel is also conserved in the process.
- do not boil food longer than needed. Once it is soft and tender, take it off the fire. If food is cooked for a very long time it loses its colour, shape and taste. Over cooking also destroys the nutritive value of food.
- potatoes and other root vegetables should be boiled with their skins on to retain their nutritive value.

**Water soluble nutrients present in food dissolve in water in which the food is being boiled. If you throw this water, nutrients will be lost. What can you do with this water? You can use this nutrient rich water to make soup or gravy for other vegetables.**

**Advantages:** Boiling is a safe and simple method of cooking also the food does not get charred. It is suitable for large scale cooking. Boiled food is also digested easily.

**Disadvantages:** While boiling, water soluble nutrients are lost if the water in which food is boiled is discarded. Some people may not like boiled food as they find it bland. The taste of boiled food can be enhanced by adding lemon or other herbs and spices.

### Let us think

- Why are certain food items boiled before they are used in a recipe?
- Why does it take longer to boil chick peas (channas) or kidney beans (rajmah) as compared to potatoes? Can we reduce the time taken to boil channa or rajmah? How?
- Name two foods which do not need boiling before cooking, two which need boiling before cooking and two which can be cooked either way.

## (ii) Simmering or Stewing

Stewing is cooking food in a small quantity of water kept below boiling point and for a long time. Once boiling starts, the flame is lowered and the food is allowed to cook slowly. The food and the liquid in which it is cooked are served together.

Have you used this method of cooking food in your house? Yes you are right. When you cook dry and hard foods like pulses, meat and even vegetables in dry form you are using this method.

**Advantages:** In stewing, the juices of the food are retained and the food tastes good. The nutrients are also conserved better.

**Disadvantages:** Food takes longer to cook.

## (iii) Steaming

When food is cooked with the heat from water vapours, it is called steaming.

How do you steam food? Well, you keep food in a pan in such a way that it comes in contact with steam from the boiling water. Look at Figure 4.2. The big utensil with a lid is the steamer. It consists of two pans and a tight lid.



Fig. 4.2



Notes



## Notes

The lower pan contains water, the pan above this has tiny holes on its base and the food is kept in it. A tight fitting lid covers this food. When water boils in the lower pan the steam comes into the upper pan through holes and cooks the food kept here.

If you do not have a steamer can you devise one? Yes, definitely. Heat water in a pan which has a tight fitting lid. Cover this pan with a clean muslin cloth. The cloth should be of optimum size and should not get in touch with fire. Put food on this cloth and cover it with a tight fitting lid. Your steamer is ready and working.

Have you seen an idli maker? This is also a steamer. Idli batter is put in the idli mould which has tiny holes. This mould is then lowered into a container with a little water at the bottom. The idli maker is then kept on fire. When water boils steam is produced. Once again it is the steam which passes through the holes in that mould and cooks the idlis. Steaming can be done for both solid and semi-solid foods. You can cook momos, khaman, dhokla and caramel custard in the same way.

**Advantages:** Steaming shortens the duration of cooking and helps to conserve nutritive value, colour, flavour and palatability of food. Steamed food is light, nutritious and easy to digest. Such foods are especially good for people who are sick or people with weak digestion or for the elderly. Young children also can be served steamed food.

#### (iv) Pressure Cooking

Pressure cooking is a process of cooking in a special utensil which allows cooking with a lot of steam under pressure. Pressure cookers are made of steel or from a mixture of aluminium and other metals and can withstand high pressure. The steam produced is trapped inside the cooker thus increasing the pressure and temperature above 100°C. Rice, pulses, meat, potatoes, roots, beans, and peas are cooked well in a pressure cooker in the shortest possible time.

It is important to remember that once the pressure cooker develops optimum pressure the excess steam is released through the weight kept on its lid. One should lower the flame under the pressure cooker at this time. This maintains the pressure and avoids fuel wastage. We must also remember to clean the weight regularly as it has tiny holes which get blocked with food. This prevents the escape of excess steam built up in the pressure cooker which can lead to the bursting of the pressure cooker and causing severe injuries. You must also check the rubber gasket of the pressure cooker as it creates a seal because of which steam is trapped.

**Advantages :** Pressure cooking kills all bacteria and hence the food is safe and hygienic to eat. The food gets cooked faster i.e. almost in 1/3<sup>rd</sup> time than boiling. This also saves the fuel. Several foods can be cooked together in the pressure cooker by using separators. It is not necessary to immerse food in water while cooking and this reduces the loss of water soluble vitamins and minerals.

**Disadvantages:** If food is cooked for very long, it loses its texture and may even burn.



**ACTIVITY 4.1**

Your friend's family loves to eat boiled rice and dal. Rice has to be boiled with lots of water and the extra water is thrown away. You know that throwing this water means we throw away the soluble nutrients present in rice.

Why is it necessary to break this habit?

Why does the family refuse to change?

How can this problem be solved?



**Fig. 4.3**



**Notes**

**INTEXT QUESTIONS 4.1**

1. List four advantages of cooking food.
  - (i) \_\_\_\_\_
  - (ii) \_\_\_\_\_
  - (iii) \_\_\_\_\_
  - (iv) \_\_\_\_\_
  
2. Choose the best option from those given below:
  - (i) A method of cooking where food is cooked without coming in contact with water is called \_\_\_\_\_.
    - a) steaming
    - b) boiling
    - c) stewing
    - d) pressure cooking
  
  - (ii) Of the four methods of cooking food with moist heat, the one method which preserves the maximum nutrients is called \_\_\_\_\_.
    - a) steaming
    - b) boiling
    - c) stewing
    - d) pressure cooking



### Notes

(iii) Stewing is characterized by \_\_\_\_\_.

- a) high temperature and lots of water
- b) high temperature and little water
- c) low temperature and little water
- d) low temperature and lots of water

(iv) Pressure cooking is done at \_\_\_\_\_.

- a) above 100 degrees
- b) below 100 degrees
- c) 100 degrees
- d) any of the above temperatures

### 4.3.2. Cooking by dry heat

We all like to eat khakhra, peanuts, bread, buns, cakes and rusks. Do you know how these are cooked? Yes all these are cooked by dry heat which is usually hot air. The temperature used is as high as 200-300°C. Dry heat cooking gives a crisp texture, brown colour and pleasant flavor to the foods.

There are three ways of cooking food by dry heat.

- a) Baking
- b) Roasting
- c) Grilling

Let us learn about these.

#### (i) Baking

Baking is the method by which food is cooked by placing it inside a heated closed box called an oven. The air inside the oven gets hot due to fire lit at its base or with electricity and the food gets cooked by hot air, when placed inside. Have you seen a bakery in your neighbourhood? You must have also seen the big ovens which are heated by fire produced by coal or wood and which are used to bake roti, naan, pav, buns, biscuits, breads and pastries. These ovens are also known as 'bhattis'.



Fig. 4.4

You can easily make an oven at home. Take a kadhai or a thick walled vessel that will retain heat well. Put a layer of sand in it and fit it with a lid. Heat this over coal, kerosene

or a gas stove. Once it becomes hot, put the food inside and close the lid. Place the tin or kadhai on a low fire. Bake food till it is light brown in colour. Do not open the lid very frequently because the hot air from inside will escape and make the food dry and hard.

**Advantages:** Food cooked using this method adds a variety to the texture in our plate.

Remember some baked products may be high in calorie content like cake and pastries. etc.

### (ii) Roasting

Another method of cooking food by dry heat is roasting. While roasting, the food is put directly on a hot tava or girdle or sand or fire and cooked.

Vegetables like brinjals, potatoes and sweet potatoes, can be roasted and so do grains like maize and chick peas. Nuts like ground nuts, cashew nuts and foods like papad, khakhra and meat are also cooked by this method. We are sure you have roasted many of these foods. Which foods do you usually roast at home? One of them would have been brinjal.

Well while roasting brinjal you must have placed it directly on the fire and must have kept on turning it every now and then so that all sides get roasted. How did you know that your brinjal is roasted and ready?

Have you seen grains or maize or chick peas or peanuts being roasted? How is that done? Yes you are right. These are roasted in hot sand placed in a huge vessel like a karahi. The food is stirred all the time for even distribution of heat. Tandoor is a kind of oven made of clay and used for roasting rotis, naans, paneer and chicken.

Find out how else roasting is done.

**Advantages:** Food is tastier when cooked this way. It also adds variety to a meal.

**Disadvantages:** It is a relatively slow method of cooking. Roasted food sometimes is too dry, therefore, it may be served with a chutney or sauce.

### (iii) Grilling

Grilling is cooking over a glowing fire and uses more indirect heat and is slower than roasting. The food is supported on an iron grid over the fire, or between electrically heated grill bars. The grill bars are brushed with oil to prevent food sticking and can be heated by charcoal,

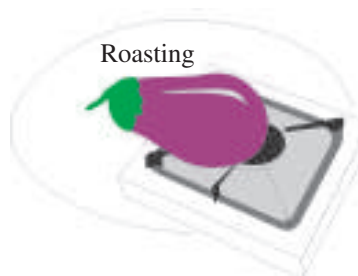


Fig. 4.5



Fig. 4.6



Notes



Notes

gas or electricity. The food is cooked on both sides to give a distinctive flavour. Potato, sweet potato, brinjal, chicken and fish can be grilled. You have eaten bati chokha, chicken and paneer tikkas and kababs. All these foods are cooked by grilling.

**Advantages:** Grilling like roasting also gives nice flavor to the food. You can prepare a variety of dishes using this method.

**4.3.3. Frying**

Frying is the process of cooking food in hot ghee or oil. Food can be cooked either by shallow frying or by deep frying. Shallow frying means frying in little oil and deep frying means immersing food fully in hot ghee or oil. You must have cooked foods using both these methods. Name some food items which you cook at home using these methods and write in the table given below.

**Table 4.2**

	Shallow frying	Deep frying
1		
2		
3		

**Deep frying**

Several Indian foods are cooked using frying. These include foods like bhajias, pakodas, samosas, vadas and kachoris. Deep frying is carried out by dropping food in well heated ghee or oil in a kadahi. The food should fully dip in ghee or oil. A few pieces of food should be added at a time. We should avoid using large quantity of oil or ghee for frying. Overheating of ghee or oil while frying should be avoided.

After frying, cool the oil and store the leftover oil in a covered container to prevent any decomposition. Avoid repeated use of the same oil for frying.

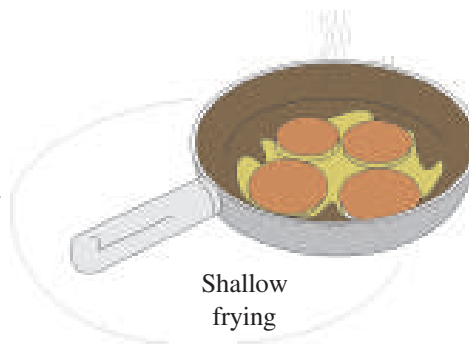


Deep frying

**Fig. 4.7**

## Shallow frying

How will you shallow fry the food? What precautions will you take while shallow frying? Yes, you are right. Use as little oil as possible and control the heat. Turn the side of the food when needed and apply oil if needed again. Non-stick pans are good for shallow frying. As they need very little oil to fry.



Shallow  
frying

Fig. 4.8

### Some precautions while frying food:

- (i) food should be cut into even sized pieces to ensure even cooking;
- (ii) the (ghee or oil should be heated well and then the flame or heat should be reduced a little;
- (iii) a few pieces of food should be put at one time as adding a lot of food may lower the temperature of fat and increase fat absorption;
- (iv) fried food should be placed on a clean, absorbent kitchen napkin or brown paper;
- (v) all the pieces of food should be removed from the oil or ghee to avoid burning of these food pieces and spoiling of the ghee or oil;

**Advantages:** Fried food has longer life than food cooked using other methods;

**Disadvantages:** Fried food especially deep fried food is difficult to digest and has many calories, too. Excessive consumption of fried foods can be bad for health.

### 4.3.4. Other Methods of Cooking

- (i) **Microwave Cooking:** It is a comparatively new method of cooking and gradually becoming popular. In this method food is cooked by microwaveradiation. Water molecules in the food vibrate rapidly due to microwaves. The heat generated in the process cooks the food.

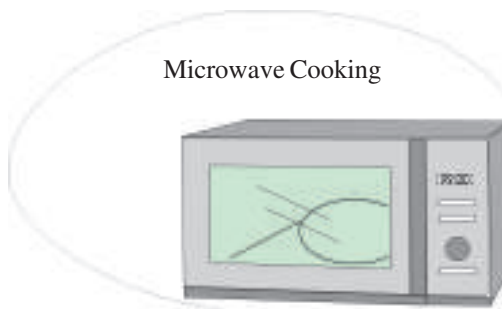


Fig.4.9

#### Advantages:

It is a quick method of cooking. Cooking time is reduced significantly as compared to other methods of cooking.

#### Disadvantages:

- (i) It uses electrical energy and therefore may not be useful in places where continuous electric supply is not available.



Notes



Notes

- (ii) It may dry up the food products.
- (iii) **Solar Cooking:** A solar oven or solar cooker makes use of sunlight as its source of energy. Box type solar cookers are useful for a family while panel type solar cookers can be used for community or large scale cooking.

#### Remember

While using a microwave, remember to open a microwave a few seconds after it has stopped. This will decrease your exposure to radiation.

#### Advantages:

- (i) A solar cooker does not produce smoke. It has low maintenance and practically no running cost.
- (ii) It is an environment friendly method of cooking food.
- (iii) Solar cooking can be successfully done in many parts of India.

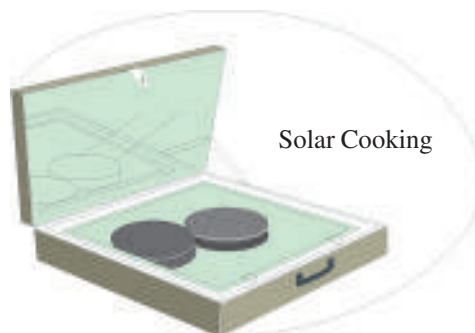


Fig.4.10

#### Disadvantages:

Solar cooker is used outdoors and works only when there is plenty of sunshine.



### INTEXT QUESTIONS 4.2

1. Fill in the blanks with appropriate words.
  - i) The method of cooking food in an oven is called .....
  - ii) When sunshine is used for cooking it is called.....
  - iii) The process of cooking food in hot sand is called .....
  - iv) ..... is a method of cooking where food is cooked in a closed box which is heated on gas or coal or using electricity.
  - v) When food is cooked on direct flame the method is called .....
  - vi) Cooking on hot tawa is called .....
  - vii) Cooking food in hot oil is called .....
  - viii) ..... is a method where heat is generated in the food by rapid vibrations of water molecules.
  - ix) In ..... the temperature used is as high as 200-300°C.



Notes

2. Write two differences between baking and roasting.

Differences

i) .....

ii) .....

3. Write two differences between shallow frying and deep frying.

Differences

i) .....

ii) .....

4. State one advantage and one limitation of solar cooking.

.....  
.....

5. Gauri is cooking *sooji halwa*. The recipe is given below. Identify the methods of cooking used while making the *sooji halwa*. Write in the space provided.

Steps for preparing the *Sooji Halwa*:

1. Add sugar to water and mix well and prepare a solution while heating

.....

2. In a *kadai* (vessel) take a little ghee and sooji and cook for 3 minutes

.....

3. Add more oil/butter and cook for 20 minutes on medium heat, till the sooji turns brown

.....

4. In a *kadai* (vessel) add cardamom powder, raisins, grated almonds, water and sugar solution slowly, stirring continuously with a spoon and allow water to evaporate for 5-7 minutes

.....

5. Garnish with a grated almonds.



Notes

## 4.4 LOSSES OF NUTRIENTS DURING COOKING

Food can lose its nutritive value in the process of cooking. Correct methods of preparation and storage must be used to preserve nutrients. Let us understand how these losses occur.

### (i) Vitamin A:

It gets oxidized when it reacts with oxygen present in the air and gets destroyed. Cooking at high temperature in an open pan results in food coming in contact with oxygen for a long period of time and this brings about a reduction in vitamin A content.

You have already learnt that Vitamin A is a fat soluble vitamin. It gets dissolved in fat when foods like spinach or fenugreek (*methi*) are deep fried. Temperature as high as 300°C is reached during deep frying which destroys vitamin A rapidly. While preparing carrot potato vegetable, cook in a covered pan in order to prevent the loss of vitamin A.

### (ii) Vitamin B Complex

It is a group of eight water soluble vitamins. They are generally found together in most foods and share certain properties in common. Vitamin B gets dissolved in water when these foods are washed, soaked or cooked in water. If this water is discarded, it results in the loss of Vitamin B.

Rice, pulses and some vegetables are the main sources of vitamin B complex in our diet and therefore care should be taken while washing, soaking and cooking these foods.

Another reason for the loss of Vitamin B complex from our food is the addition of cooking soda to the food during the process of cooking. Therefore use of soda while cooking food should be avoided.

Milk is a good source of Riboflavin also called Vitamin B. It gets destroyed when milk is exposed to sunlight (due to ultraviolet rays). In order to preserve Vitamin B in food, exposure to sun light should be avoided.

### (iii) Vitamin C

It is another water soluble vitamin which is easily destroyed by heat and oxidation. When you cut vegetables and fruits rich in vitamin C and leave them exposed to air for a long time before cooking or eating it, some of the vitamin is lost. Vitamin C is also lost when you wash vegetables and fruits after cutting or if you cut them too fine.



When food rich in vitamin C are cooked for a long time or cooked with soda most of vitamin C is lost. This vitamin is also lost when the water in which the food is cooked is thrown away. Therefore, proper care during cutting, washing and cooking of vitamin C rich fruits and vegetables should be taken. Citrus fruits and vegetables (sour and juicy) have this vitamin in plenty and we can conserve it.

#### (iv) Proteins

Cooking results in softening of proteins in foods such as egg, fish and meat. All proteins present in the food items absorb water and get coagulated by heat. If the coagulated protein is further heated, it loses moisture and becomes dry and rubbery. It also becomes difficult to digest.

Addition of acidic ingredients like lemon juice, tomatoes, curd or tamarind juice increases cooking time and makes the protein tough and leathery. These substances should be added towards the last stage of cooking.

When protein rich foods like milk are cooked with sugar for a long time (for example, while making kheer or rabdi) the sugar and protein react to form a brown coloured compound and the quality of protein deteriorates.

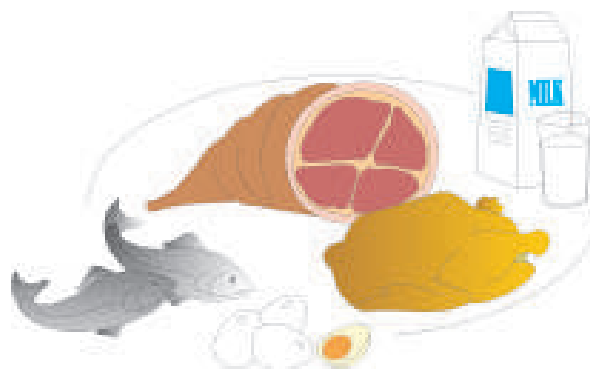


Fig.4.11

#### (v) Oils and Fats

Oil and ghee are used for cooking and frying of foods. During frying the oil or ghee is heated to a high temperature i.e.  $300^{\circ}\text{C}$ . Repeated use of oil for frying is quite a common practice but must be discouraged because when ghee or oil are heated for long periods of time over and over again, their quality becomes poor.

Remember: Repeated use of the same oil or ghee as a cooking medium should also be avoided. You should keep changing the cooking oil used in your kitchen. You may choose any of the oils like groundnut oil, vegetable oil, sunflower oil or soyabean oil. You have already learnt that once oil or ghee has been used for frying it should be allowed to cool and then sieved and stored in a covered container.



Fig.4.12



Notes



Notes

**(vi) Minerals**

Minerals like sodium and potassium dissolve in water. Minerals get lost when food is first cut and then washed and the extra water in which they are boiled, is thrown away. Hence, we should not throw away water in which food has been cooked. While cooking, we should wash vegetables and fruits before cutting.



**INTEXT QUESTIONS 4.3**

1. Write true (T) or false (F) against each statement.
  - (i) Cooking soda has no harmful effect on nutrients present in food that is being cooked. ....
  - (ii) Minerals are lost when the water in which the foods are cooked is thrown away.....
  - (iii) Maximum loss of nutrients occurs when food is pressure-cooked. ....
  - (iv) Vitamin C gets easily destroyed during cooking. ....
2. You are served the following - (i) boiled potato raita (ii) potato chips (iii) potato pakora (iv) roasted potato  
 Answer the following questions with reasons.
  - (i) Which dish would have least nutrients?
  - (ii) Which dish would be suitable for a nine months old baby?
  - (iii) Which dish would take the least time to cook?

Note : There may be more than one answer for each question.

**4.5 CONSERVATION OF NUTRIENTS**

Conservation of nutrients means saving nutrients during the process of preparation and cooking of food. We can conserve nutrients in food items by following some simple practices:

1. Wash vegetables before cutting them so that minerals and vitamins are not destroyed. Wash them only as much as necessary.
2. Scrape the peels of vegetables as thin as possible because vitamins and minerals are found just under the skin of the vegetables.
3. Cut vegetables into large pieces just before cooking. Small pieces mean greater loss of nutrients.

4. If vegetables are to be cooked in water, put them into boiling water.
5. Use just enough water for cooking. Do not throw away the extra water. Use this extra water to cook some other food.
6. Do not use cooking soda while cooking.
7. Use of tamarind or lemon juice during cooking helps to conserve the vitamins.
8. Cook rice in just enough water which gets absorbed during cooking.
9. Cook in a pan which has a well fitting lid. When you cook in an uncovered pan most of the nutrients are lost.
10. Do not overcook the food as many nutrients will be destroyed.
11. In order to preserve nutrients, use a cooking method which cooks food the fastest.



### ACTIVITY 14.2

Lesson 4 discusses the common nutritional problems affecting large number of people in India. The most common ones are anemia (caused due to iron deficiency), goitre (caused due to iodine deficiency) and night blindness (caused due to vitamin A deficiency). Fortification is the technique of adding specific nutrients to a food (called the carrier) in order to overcome the commonly seen deficiency disorders. One such example is **Iodised Salt**. The symbol of smiling sun helps you identify the iodized salt. Similarly there are other products that are fortified with specific nutrients. Visit a grocery shop or mall in your neighbourhood. Carefully read the nutrition labels on cooking oil containers, wheat flour and biscuit packets. Note the nutrients added to them. Do they carry a special symbol?

## 4.6 ENHANCING NUTRITIVE VALUE OF FOOD ITEMS

You are now familiar with the different methods of cooking and ways that help us to conserve nutrients while cooking. It would be brilliant if we could increase the nutritive value of food items without increasing the cost. Can you suggest some ways of doing so?

The process of improving the nutrients in food items by special methods is called **Enrichment or enhancement of nutrients**.

You must understand the purpose of enhancing the nutritive value of food. It helps to—

- provide food which can meet the nutritional requirements of the body;
- provide opportunity for proper selection and preparation of food items;
- provide an opportunity for balanced food;





- improve the flavour and texture of the food;
- make available a variety in food;
- assist in planning the daily menu, keeping in mind the content of the nutrient in the food;
- prevent deficiency diseases in the body; and
- develop good food habits.

#### 4.6.1. Methods of Food Enrichment

We can enrich the foods using the following simple methods:

- Combination
- Fermentation
- Germination

Let us learn more about these methods.

##### (i) Combination

No single food provides us all the nutrients. Hence, we eat a variety of food. For example, we eat roti with vegetables and rice with dal. We include salad, curd, buttermilk chutney, pickle and papad, too, in our regular meals.

Combining foods from different food groups is the easiest way of eating all nutrients. Similarly we can also combine a number of food items in one dish and get all the nutrients from it. Khichadi, dhokla, missi roti are a few examples where we are combining ingredients from different food groups. Such a combination of food items improves the quality of nutrients. Do you know how this happens? Here are some examples.

You know that cereals lack certain amino acids. And these are present in pulses. When a pulse and rice are combined, the quality of proteins becomes as good as that of milk. Ideally cereals (rice, wheat, jowar, bajra and maize) should be combined with pulses, nuts and oil seeds like groundnuts, sesame seeds and milk products to get a good quality protein in our diet. Similarly vegetables like spinach, fenugreek and carrots are rich in vitamins and minerals. These when added to a meal can further enhance the nutritive value of food.

**Advantages:** The quality of a meal is improved without increasing the cost by combining two foods selected from same or different food groups. It is a simple technique that can be followed in every household.

##### (ii) Fermentation

Fermentation is a process in which micro-organisms present in the food or added in the form of curd or yeast, change nutrients already present in the food, into simpler and

better form. In this process some new nutrients like Vitamin C and B complex are also created.



Fig.4.13

Can you name some fermented foods? Yes, curd, bread, khaman, dhokla and idli are all examples of fermented food items.

Have you ever made bhaturas? These are made by mixing a little curd in maida (refined flour) which is kneaded into dough and kept covered for a few hours. During this time the dough rises. Do you know why? When you add curd to maida you introduce micro-organisms which begin to grow at a very fast rate. They start a process called fermentation which makes the dough rise and become almost double in quantity.

Similarly, idli is prepared by auto fermentation where microorganisms present in rice and pulse cause fermentation and the batter rises. During fermentation the micro-organisms use up some of the nutrients present in the batter and change them into better quality nutrients. They also produce additional nutrients like vitamin B-complex and vitamin C which were not present in the food earlier. These are two examples of fermented food.

### Advantages

- Fermentation improves the digestibility of food items. The micro-organisms which cause fermentation break the proteins and carbohydrates into smaller parts, which are easier to digest.
- Fermented foods become spongy and soft and thus become, specially, useful for young children and elderly people.

### (iii) Germination

Take some whole 'moong' or 'channa' and soak it overnight in a sufficient quantity of water. What do you see the next day? Yes, they become big in size and soft to touch. Now drain the water thoroughly and tie or wrap the soaked grains in a wet cloth and keep for another 12 to 24 hours, you will notice that small white shoots have started growing from these grains. This process is called germination or sprouting.

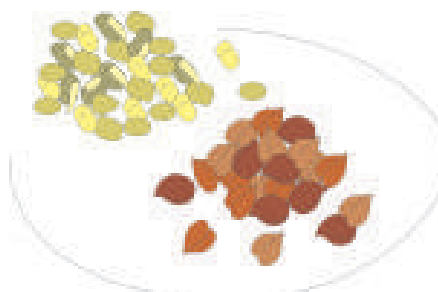


Fig.4.14



Notes



**Notes**

Grains like wheat, bajra and jawar can also be sprouted. These grains can then be dried in shade and roasted lightly on a heavy bottom pan. They can be grounded and used in preparing supplementary food items for young children and elderly people. Pulses like moong, peas and black grams are also sprouted first and then steamed and eaten after adding salt, chilli powder, lemon juice and chat masala.

The time and water which each grain or pulse or legume needs for soaking and sprouting is different. Normally 8-16 hours are needed for soaking and 12-24 hours for sprouting depending upon the season. The cloth in which the soaked grains is tied should be kept moist all the time.

**Advantages**

- i) It increases digestibility of foods because some carbohydrates and proteins are broken down into smaller and easily digestible forms.
- ii) It increases the nutritive value of food with no additional cost. You have already learnt how this happens.



**INTEXT QUESTIONS 4.4**

1. Arrange the following steps of cooking in the right order by putting a sequential order of 1, 2 ... against each step.

- |                                       | Order |
|---------------------------------------|-------|
| a) watch the time while cooking       | _____ |
| b) wash the vegetables                | _____ |
| c) cook in covered pan                | _____ |
| d) peel the vegetables thinly         | _____ |
| e) cut the vegetables into big pieces | _____ |

2. Write three ways of preventing nutrient loss while cooking green vegetables.

.....

.....

.....

3. **Fill in the blanks**

- i) Combination of food items is important since no food supplies.....  
.....the nutrients.
- ii) Combining food items is beneficial where ..... money is available.
- iii) Germination increases the nutritive value and ..... of food items.



Notes

4. In Column I are listed three ways of enhancing the nutritive value of food items and the Column II contains the reasons for this improved quality. Match the method with appropriate reason.

Column I	Column II	Reasons
a) Combining	i) increases vitamin content due to activity of microorganisms	
b) Fermenting	ii) increases the vitamins	
c) Germinating	iii) improves quality due to different items eaten together	
	iv) increases the acidity of food	

5. You made arhar dal and rice for the lunch. You can also cook the same dal by mixing moong and spinach in it. Which meal is now more nutritious and why? Will this change be acceptable to your family? If not then what will you do?

Your family loves to eat 'aalu tikki' (potato cutlets) which are deep fried. If you made this snack using shallow frying and served them with channa and chutney. Will the change be acceptable?



### TERMINAL QUESTIONS

- List five advantages of cooking food?
- Name two methods of cooking food for the following:
  - Long cooking time
    - 
    -
  - Short cooking time
    - 
    -
- Dolma prepared cabbage salad for herself, whereas Mohan cooked cabbage for his meal. Who got more vitamin C from the cabbage?
- Saraswati is cooking spinach in her kitchen. She chopped the spinach finely, washed it thoroughly and shallow fried it in an open pan. Do you think she cooked it the right way? Give reasons for your answer



Notes

5. How do the following improve the nutritive value of foods?
  - a. Fermentation
  - b. Germination
5. Match the food items given in column I with the method used in cooking it from the column II.

**Column I**

**Cooked food**

- (i) Dhokla
- (ii) Dal
- (iii) Puri
- (iv) Parantha

**Column II**

**Method of Cooking**

- (a) Simmering
- (b) Deep-frying
- (c) Shallow frying
- (d) Steaming
- (e) Boiling



## ANSWERS TO INTEXT QUESTIONS

**4.1**

1. Refer text
2. (i) c      (ii) a      (iii) b      (iv) a

**4.2.**

1. i. baking    ii. solar cooking    iii. roasting    iv. baking  
v. grilling    vi. baking    vii. frying    viii. microwave cooking    ix. dry heat.

2.

**Baking**

- (i) Food is placed inside a closed box called oven.
- (ii) It is used for making bread biscuits, cakes, etc.

**Roasting**

- (i) Food is put directly on the hot tava, hot sand or hot fire.
- (ii) It is used for roasting channas, brinjal, maize etc.

3.

**Shallow frying**

- (i) little oil is smeared on the food.
- (ii) Tava or frying pan is used for frying

**Deep frying**

- (i) food should fully dip in ghee/oil
- (ii) Karahi is used for frying





Notes

4. Refer text
5.
  1. boiling
  2. roasting
  3. stewing
  4. frying

**4.3**

1. (i) False      (ii) True      (iii) False      (iv) True
2. (i) Potato chips, potato pakora  
(ii) Potato raita, baked potato, roasted potato  
(iii) Potato baked in microwave oven.

**4.4**

1. b) 1      (d) 2      (e) 3      (c) 4      (a) 5
2. Refer text
3. (i) All  
(ii) Less  
(iii) Digestibility



# PRESERVATION OF FOOD

You have already learnt that a balanced diet is drawn from various food groups which are composed of a variety of food stuffs. Very often some foods are not available through out the year because of changing seasons. We are sure that you would like to eat all vegetables and fruits through out the year. How will you eat mangoes in winter and carrots in summer? We all wish to enjoy fresh mangoes through out the year but is it possible? No, we can not relish fresh mangoes as such but preserved mango products like pickle, chutney, juice, squash and jam can be enjoyed through out the year. Therefore, preservation of food is very important to improve the nutritional content and have variety in diet. Let us learn how can we preserve vegetables and fruits when they are in abundance.



## OBJECTIVES

After studying this lesson you will be able to:

- understand the terms food-spoilage and food-storage;
- categorize the food items of daily use according to their shelf life;
- define food-preservation and state its importance;
- discuss general principles of food preservation;
- know the household methods of preserving food;
- evaluate the hygiene practiced in handling food stored at home and see how it helps in preventing food spoilage and wastage.

## 5.1 FOOD SPOILAGE AND STORAGE

### A. Food spoilage

Simply speaking food spoilage means food is no longer fit for eating. When you keep

bread outside the refrigerator for a few days, a spongy growth is seen on it, which may be white, green or black in colour. This growth is called mould. The bread is now spoilt due to growth of mould and has become unfit for our consumption. Likewise, if cooked dal or vegetable is left outside for sometime, it develops a bad smell and bubbles due to fermentation. The dal and vegetables are thus spoilt and cannot be eaten. How can we say that a food is spoilt? Yes, you are right. Food is said to be spoilt if it changes colour and gives off a bad smell, shows signs of fermentation i.e., bubbles are seen in the food or there is growth of mould (spongy or powdery growth on the food stuff). Formation of soft spots or soft brown spots on fruits and vegetables is also an indication of food spoilage.

### Reasons for food spoilage

Food get spoilt mainly due to the presence of micro organisms, enzymes (present in food), insects, worms and rats. Let us discuss these factors in some more detail.

**Presence of micro-organisms:** You kneed the dough and keep it in the refrigerator. What do you observe? Yes, the top surface becomes black. Do you know why this is so. It is due to the presence of micro-organisms. These micro-organisms are very small organisms which cannot be easily seen. Micro-organisms spoil food items when the conditions for their growth are appropriate.

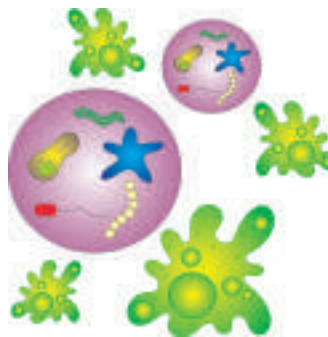


Fig.5.1

Like all living beings they require air and moisture, right temperature and food to grow and multiply. Conditions appropriate for growth of micro-organisms are:

- food having high moisture content; Can you tell which one has more moisture content Tomato or Potato. The answer is tomato and that is the main reason why it gets spoilt faster.
- air surrounding the food contains micro organisms.
- food kept for a long time at room temperature: Have you ever observed what happens to spinach kept at room temperature it turns yellow and stale.
- skin of fruits and vegetables getting damaged, if exposed to micro-organisms like banana. You may name some more fruits which get damaged.
- foods with low salt, sugar or acid content: Can you give some examples? Pickles, fruit jam etc.

Hence if you want to prevent spoilage of food by micro organisms, you must remove the conditions which are appropriate for their growth.

**(ii) Presence of enzymes:** Enzymes are chemical substances found in all plants and animals. Are enzymes harmful to foods? No, enzymes help in ripening of fruits



Notes



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and vegetables. A raw green mango after a few days becomes sweet in taste and yellow in colour due to the enzymes action. What will happen if you keep this yellow, ripe mango for a few more days? It will become soft, develop black spots and give out bad smell. This is due to continued action of enzymes. No one likes to eat such an over ripe or rotten mango. You know that even when the skin of fruits is not cut or damaged, it gets spoilt. This is due to **enzymes action**.

**(iii) Insects, worms and rats:**

Have you noticed small brownish black insects or small white worms in rice and dals? These insects eat the food grains. They make small holes in the grain and at times convert the grain to a fine powder. The food grains thus become unfit for human consumption. You must have also seen rats damaging the food.

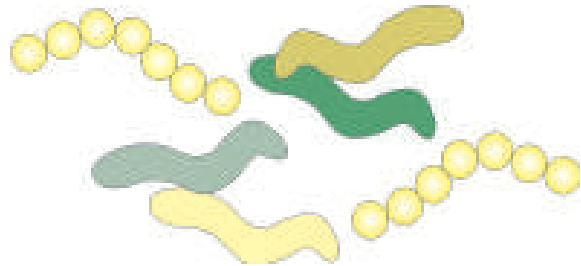


Fig.5.2

You have just learnt the three main causes of food spoilage. These are micro organisms, enzyme action and insects, worms and rats.



**ACTIVITY 5.1**

Make a note of spoilage of food in your house, in the following table.

<i>Food</i>	<i>Spoilage</i>
1. Milk	
2. Rice	
3. Orange	

Now after learning about the reasons for food spoilage, let us see, how food can be stored to keep it fit for consumption for a long time.

**B. Food storage**

Food storage simply means keeping food in a special place until it is needed for consumption. For example you buy cookies or snacks and leave them in air tight container till you want to use them. You buy milk and boil it or you store it in cool place to grow. You buy pulses, rice and wheat flour and store them in air tight containers. Why do you do this? Well, because you want your food to remain as fresh as possible and protect it from being spoilt.



Notes

The quantity of food you buy depends on:

- i) your requirements
- ii) how soon it is likely to be spoilt or what we call the **shelf life** of the food.

## 5.2 CLASSIFICATION OF FOOD ITEMS ACCORDING TO SHELF LIFE

You must have noticed the different food items take different length of time to get spoilt. Can you name three food items that spoil quickly and three which do not get spoilt for a long time?



Fig.5.3

No.	Spoil quickly	Spoil late
1.		
2.		
3.		

The time for which a food can be kept fresh is called its '**shelf life**'. It is also known as stability of food during storage. Food items are classified on the basis of their stability during storage into non- perishable, semi perishable and perishable foods.

**Non- perishable food** include whole grain cereals, pulses, nuts and oil seeds, sugar and jaggery.

**Semi perishable food** include processed cereals and pulse products (e.g. maida, suji), eggs, potatoes, onions, biscuits and cakes.

**Perishable foods** include green leafy vegetables, peas, beans, tomatoes, apple, bananas, bread, butter and cream.

As a guide to consumers, now it is mandatory for manufacturers to provide detailed labels on processed food items indicating their date of expiry. If you read the label on any packed food you will find written on it 'consume before' or 'best before' (a specified date). This is nothing but the shelf life of the food item as after that date the food may not look or taste the same as fresh and also start decomposing.



### ACTIVITY 5.2

Look at the label of three packed food items you bought recently and see if 'shelf life' is mentioned on them. Enter the information in the table below:



Notes

S.No.	Item	Best before
1.		
2.		
3.		

### 5.3 FOOD PRESERVATION

Have you ever wondered why you boil milk or refrigerate food or put dry ingredients in the sun or store food items in air tight containers? Yes, you are right. These practices help in increasing the shelf life of food or preserve it. In other words to **preserve** is to keep food safe, retain quality, and prevent decomposition or fermentation. Thus food preservation can be defined as:

A process by which food items are prevented from getting spoilt for a short or long period of time. The colour, taste and nutritive value of the food are also preserved as far as possible.

Remember that

- Some food items spoil earlier than the others.
- Colour, taste and nutritive value of food can be preserved.

Preservation implies prevention of decay or spoilage of food either by avoiding contamination or inhibiting enzymatic or chemical reactions or changes. It helps to increase shelf life of food and thus food can be stored for future use.

#### 5.3.1 Importance of food preservation

Now that we have understood the concept of food preservation, can you reason out why you should preserve foods? Well, here are some of the reasons.

##### 1. Preservation takes care of the excess produce.

Can you think of some products which are made with mangoes? Yes, these may be juice, murraba, squash, aam papad, pulp, chutney, pickle and raw mango powder. You may be able to add a few more to the this list. Mango is a summer fruit and grows in large quantities in India during the months of April to August. Different varieties of mango are grown in different parts of our country.



Fig.5.4

Usually all the quantity of food grown in a region cannot be consumed by the people staying there as there is usually excessive production. What do the farmers do with this excess production? They make arrangements to transport the excess quantity to regions where either mango is not grown or where that particular variety of mango is not available. If they do not do this, the excess produce will rot and go waste. The farmers will then lose money. Often there is still some quantity left after the fresh produce is consumed by the people in a region. It is this quantity which has to be preserved so that it is available for consumption during the months when mango is not available. Preservation of food is done during the months when food is available in large quantity and is therefore priced very low. This helps in making preserved foods economical.



Notes

## 2. Preservation adds variety to our meals.

Have you ever got tired of eating the same vegetables in a particular season? Is it not nice to eat peas when they are either very expensive in the market or are not available? Eating cauliflower in pulav or cauliflower vegetable during the summer months adds variety and interest in meals. In the same way, eating some chutney, papad or pickle along with the meals adds to the variety in our meals. Preserving food items when they are in season makes this possible.

## 3. Preserved food items are sent to places where they are not grown.

In some areas of Rajasthan which are desert areas and in Himalayan regions that are covered with snow most of the time, very few food items can be grown. Therefore preserved food items can be sent to such places.

## 4. Preservation of foods makes transportation and storage of foods easier.

Preservation also reduces bulk of a food item. For example, if you dry green leafy vegetables such as mint, fenugreek, coriander, etc, their weight and volume reduces, thus making their storage and transportation easy.



### INTEXT QUESTIONS 5.1

1. Choose the correct answer to complete the incomplete statements below:
  - i) Food spoilage is due to
    - a) micro-organisms and enzymes
    - b) micro-organisms and excess production
    - c) enzymes and excess production
    - d) all the above



## Notes

- ii) Non- perishable food items are those which
  - a) do not spoil at all
  - b) take long time to spoil
  - c) spoil easily
  - d) spoil according to where they are kept
- iii) Preservation of food means
  - a) to keep food safe
  - b) to retain quality of food
  - c) to prevent decomposition of food
  - d) all the above
- iv) Shelf life of food is related to
  - a) freshness of food
  - b) quality of food
  - c) decomposition of food
  - d) time limit for which food can be used
- v) the main reason for preserving food is to
  - a) improve its colour and taste
  - b) increase its shelf lie
  - c) make costly food available
  - d) change its texture

### 5.3.1 Principles of Food Preservation

You have learnt earlier that by boiling milk we are preserving it for a longer period. But, what are you actually doing by boiling? You are killing the microorganisms by raising the temperature of milk. Micro-organisms cannot survive at very high temperature. This is one of the principles of food preservation. Let us now learn about the principles of food preservation:

- (i) killing the micro-organisms.
- (ii) preventing or delaying the action of microorganisms.
- (iii) stopping the action of enzymes.

#### (i) Killing the micro-organisms

You already know that boiling of milk kills microorganisms. Sometimes, heat is applied for a shorter duration to kill only undesirable microorganisms that is those



which can spoil the food stuff. It is done while pasteurizing milk. The cooking that you do at home also keeps food free from microorganisms. In canning (sealing in tins) food is heated to high temperature to prevent growth of micro-organisms in food.

### (ii) Preventing or delaying the action of micro-organisms

You all know that a peeled apple spoils faster than the one with skin intact. Do you know why? This is because the apple has its skin as a protective covering which prevents the entry of micro-organisms. Similarly, the shell of nuts and eggs, skin of fruits and vegetables serve as a protective coating and delay the action of micro-organisms.

Food packed in polythene bags and aluminium foils are also protected against micro-organisms. You have read earlier that micro-organisms need air and water to grow. But if these are removed, you can prevent the action of micro-organisms and ensure that food does not get spoilt.

Lowering temperature or freezing a food also helps in delaying the action of micro-organisms and therefore in preserving the food. You must have seen frozen food items. Frozen food can be kept for a longer period than fresh food. This is because micro-organisms cannot act at low temperatures. Thus, when you are putting food in the refrigerator or freezer, you are preventing the micro-organism from growing. Lastly, certain chemicals like sodium benzoate and potassium metabisulphite also help in preventing the growth of micro-organisms. These chemicals are called **preservatives**.

Thus you have learnt that the action of micro-organisms can be delayed or prevented in many ways like-

- providing a protective covering
- raising the temperature
- lowering the temperature
- adding chemicals

### (iii) Stopping the action of enzymes

Enzymes also cause food spoilage. They are naturally present in food. Take the example of fruits. Keep a raw banana for a few days and observe what happens to it. Yes, the banana will turn ripe, become yellow and then start decaying. All this happens due to presence of enzymes. What will happen if the action of enzymes is stopped? The foodstuff will be prevented from being spoilt.

Enzyme action can be prevented by giving a mild heat treatment. Before canning or freezing, vegetables are dipped in hot water or are exposed to steam for a few minutes. This is known as **blanching**. When you heat milk, you are not only killing micro-organisms present in it but also stopping the action of enzymes. This extends its shelf life.



Notes



Notes



**INTEXT QUESTIONS 5.2**

1. Which of the following will not help to arrest the action of micro-organisms on tomatoes :
  - (a) put them in boiling water
  - (b) put them in a freezer
  - (c) leave them on the shelf.
  
2. List four ways of delaying action of micro-organisms on apples.
 

.....

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3. Define the terms preservation and shelf life.
 

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**5.3.2 Methods of Preserving Food at Home**

Food can be preserved at home by using the following methods-

- (i) Exposing food to low temperature
- (ii) Exposing food to high temperature
- (iii) Using preservatives
- (iv) Dehydrating food

Let us now discuss each of these methods in some detail.

**(i) Low Temperature**

You have already learnt that food stays longer at low temperature i.e., in a cold environment. Using low temperature to preserve food works on the principle that low temperature slows down microbial and enzyme action. The food is thus prevented from spoilage. Do you use this method of preservation at home? Yes, if you have a refrigerator you can use it because a refrigerator helps to keep food at low temperature. Food can be preserved at low temperature by:

- Refrigeration- keeping food between 40<sup>0</sup> C- 70<sup>0</sup> C
- Cold storage - keeping food between 10<sup>0</sup> C- 40<sup>0</sup> C
- Freezing- keeping food between 180<sup>0</sup>C or below

The duration for which the food can be preserved by using low temperature varies with the type of food and the temperatures. The lower the temperature, longer is the duration for which the food can be preserved. Of the three methods, freezing uses the lowest temperature. Since both cold storage and freezing are not used very commonly at home as methods of preservation, (we will not discuss their details in this section. You have already learnt about refrigeration in the previous section.)

### Freezing of Peas

#### Method

- Step 1: Select about half a kilogram of fresh tender peas and shell them.
- Step 2: Take enough water in a stainless steel pan in which the peas can be completely immersed. Add one teaspoon of salt for half a litre of water, dissolve and bring the solution to boil.
- Step 3: Completely immerse the peas in the boiling solution for about two minutes.
- Step 4: Drain the peas immediately on to a stainless steel sieve and let them cool for 10-15 minutes.
- Step 5: Pack the peas in polythene bags, remove the air by pressing and seal the bags.
- Step 6: Put the packets of peas into a freezer.

Note: Similarly other vegetables such as cauliflower, beans and carrots can also be frozen.

### Using Frozen Vegetables

1. Take out the frozen packet from the freezer one or two hours before use and let the food thaw at room temperature. Put peas in a sieve and keep under tap water for a few minutes. Drain and use.
2. Frozen vegetables can be stored up to six months in a freezer.

### Precautions while freezing Fruits and Vegetables

1. Packaging material, that is, polythene bags should be strong enough to withstand expansion of food material on freezing.
2. The food once brought out of the freezer and brought to room temperature should not be refrozen.

**Notes**



3. Small packets should be prepared, as food once thawed must be consumed. So there is less chance of the remaining food material being spoilt. This also helps to avoid refreezing of the unutilized food material.
4. Exclude the air carefully and completely from the package before sealing.
5. The freezer should not be opened too frequently.

**Thawing is the process of removal of ice from frozen food.**

### (ii) High Temperature

Micro- and enzymes are destroyed at high temperature, thus food is safe and does not spoil. Do all organisms get killed by increasing temperature? No, there are some micro-organisms which do not get destroyed at high temperature.

If these organisms are not killed, they can spoil food items once the temperature is decreased. There are two methods of preserving food by using high temperature-

- Pasteurization
- Sterilization

**Pasteurization:** When you think of pasteurization, which food item comes to your mind? Yes, its milk. We have often heard about pasteurized milk packets. In this method food is heated to a high temperature and then quickly cooled. The micro-organisms are not able to withstand the sudden change in temperature and are destroyed. However, some organisms still survive in this method.



**Fig.5.5**

**Sterilization:** This is done to prevent any spoilage of food items due to microorganism. What does the word sterilization mean? It means free from any living organism. The high temperature used in this method destroys all the micro-organisms in the food. The food items are exposed to high temperature for longer period and in some cases under pressure. e.g. when a pressure cooker is used for cooking, the food lasts longer because most micro-organisms get destroyed. You can also sterilize bottles and other equipments used for preservation.

### (iii) Use of Preservatives

Now let us learn about the chemicals which can be used to increase the shelf life of processed food products. These are called **preservatives**. Any substance that is added to food to make it last for a longer period is called a preservative. You have learnt that

increasing the concentration of salt, sugar or acid in a food prevents its spoilage. Therefore, salt, sugar or acid are substances which act as preservatives.

### Types of preservatives:-

List some preservatives found in pickles. Some of them are salt, sugar, lemon juice, vinegar, oil and spices. These are natural preservatives.

Read the label of a jam/squash/ketchup/chips label. Write the preservatives mentioned on the label. Enter the information in the table below.

<i>Name of the product:</i>	<i>Pickle</i>	<i>Jam</i>	<i>Sauce</i>
Preservatives present:			

You may find names of some of the chemicals like, potassium metabisulphite, citric acid and sodium benzoate. These are called chemical preservatives.

### Natural Preservatives

- (a) **Salt:** When you make pickle at home, salt is one of the ingredients used. Do you think that salt is added only for taste? Besides adding taste, salt has a specific function, i.e., to act as a preservative. If the proportion of salt in pickles is less, it can get spoilt after sometime.

How does salt act as a preservative?

Increasing the quantity of salt in the food changes its composition. Due to the presence of salt in the food, osmosis takes place. As a result, water comes out of the food. When there is no or less water in the food, the microorganisms are not able to grow and the food becomes safe. Salt also reduces the activity of enzymes, thus preventing the food from getting spoilt. Salt is used as a preservative in pickle, chutney, sauce and canned food. Salt is rubbed on fish which helps to preserve it.

- (b) **Sugar:** Can you think of some preserved foods where sugar is used as a preservative?

Yes, these are jams, jellies, murabbas and squashes. Like in pickle and chutney, sugar is added to these foods not only for taste but also as a preservative. The proportion of sugar has to be correct to protect such foods from spoiling. How does sugar prevent food spoilage? Sugar dissolves in the water in the food item. This results in less water being available for the growth of micro-. Hence the food becomes safe.

- (c) **Acids:** Can you think of any sour food items used as preservatives? These are lemon juice, vinegar and citric acid. Vinegar is used to preserve onions and tomato ketchup; lemon juice is used in pickles; citric acid is used in squashes. Acids increase the acidic content of food items, thus preventing the growth and activity of micro-organisms.



Notes



## Notes

- (d) **Oils and spices:** These are used as preservatives in pickles. Can you think of spices which are commonly used as preservatives? Yes, mustard powder, turmeric and red chilies are a few of them. These prevent the growth of micro-organisms, thus preventing spoilage. When pickle is made at home, have you observed that oil is poured to cover the mango, lemon or other vegetables which are being pickled? The oil makes a protective covering and has two advantages-
- (i) prevents contact of micro-organisms with the food, hence they can not spoil the food.
  - (ii) prevents contact of air with food, hence the micro organisms can not grow and spoil the food.

You have learnt about some of the common methods of food preservation. Generally, a combination of the principles of preservation is used. For example, in pickles you use large amounts of salt, spices and oil. In the same way, acids and a lot of sugar are used for making squashes. Thus, when the seasonal fruits and vegetables are available at a lesser price, they can be stored for future use and add variety to our meals.

Will you like to learn about the procedure of making a jam and a squash? Alright, let us first learn how to make apple jam.

### Method of making apple jam

#### Ingredients:

Apples: 1 kg

Sugar: 750 gms

Citric Acid: 1 teaspoon

Water: 150 ml

#### Method:

- Step 1: Select firm apples and wash them thoroughly.
- Step 2: Cut them into small pieces. While cutting, remove the core and hard seeds.
- Step 3: Cook in water till apple pieces are tender (you can also pressure cook them for 2 minutes.)
- Step 4: Sieve the pulp carefully.
- Step 5: Add sugar stir constantly and add citric acid.
- Step 6: Cook till the mixture obtains thick consistency and do the plate test (refer to fig.5.6) to check that the consistency of the jam is gel like.
- Step 7: Pour hot jam into wide mouthed, sterilized bottles and cool.
- Step 8: Store in a cool place.



Fig.5.6

**Test for Doneness:** Drop Jam in ice cold water. If it disperses, it needs to be cooled further and if it solidifies in one place jam is ready.

### Use of Chemical Preservatives

#### Orange Squash

##### Ingredients:

Orange juice: 1 litre

Sugar: 2 kgs.

Water: 1 litre

Potassium Metabisulphite (KMS):  $\frac{1}{2}$  teaspoon

Orange essence: 1 teaspoon

Citric acid: 30 gms

##### Method:

- Step 1: Select juicy oranges and extract the juice.
- Step 2: Take water, sugar and citric and boil the mixture till the sugar is completely dissolved.
- Step 3: Add orange colour, essence and juice.
- Step 4: Dissolve the potassium metabisulphite in a little juice and mix it into the prepared squash.
- Step 5: Pour it into sterilized bottles. Allow to cool. Seal it or close the bottle tightly.
- Step 6: Store the bottles in a cool place away from the sun.

You can use the same procedure to make lemon squash too.

#### (iv) Dehydration

Can you name some dried food items that are stored in your kitchen for a period of one year or more? Are these potato chips, sevian (vermicelli), fenugreek (methi), cauliflower, papad or onion? These are food items which have been preserved by the



Notes



### Notes

dehydration method. The word **dehydration means removing water or moisture from foods**. The home method of dehydration is sun drying. We will now discuss this method in detail.

Some food items like green leafy vegetables (methi, pudina, coriander etc.) cauliflower, grapes, amla, onion and raw mango are dried. Some food are cooked and then dried. For example potato-chips, papad, banana-chips and wadis. The most appropriate weather to dry foods is when the air is dry and there is strong sunshine.

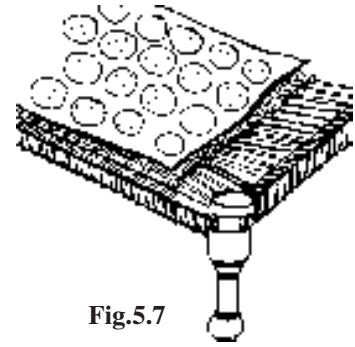


Fig.5.7

### Method of dehydration

- Step 1 Clean all tins, plates, etc, to be used to dry and store the food. Dry in the sun. Storage tins should have air tight lids.
- Step 2 Wash the vegetables/fruits to be dehydrated. Cut, if required. Remove the stem, seeds and skin. Remove any decaying portions.
- Step 3 Blanch vegetables, i.e. put them in boiling water. The time for blanching varies with hardness of fruit/vegetables. Remove when the food is soft (blanching reduces enzyme activity).
- Step 4 Put vegetables in cold water containing salt and Potassium Metabisulphite (popularly known as KMS) for 5-10 minutes. This prevents blackening of foods. Green leafy vegetables and other dark vegetables should not be put in KMS solution as it will bleach the colour of vegetables.
- Step 5 Spread the vegetables on a clean cloth in the sun. Cover it with a thin cloth to avoid dust and flies getting into the food.
- Step 6 When the food is dry (test by looking at hardness) cool it to room temperature. Store in an air tight container. When you want to use dehydrated fruits and vegetables, wash and soak them in water for some time.

Now let us look at how you can use this method to preserve fenugreek (methi) and potato.

#### 1. Dehydrating fenugreek (methi)

1. Remove the stems and wash fenugreek thoroughly.
2. Put on a cloth in the sun, cover it with muslin cloth.
3. Keep it in sun till it is dried.
4. Cool to room temperature and store in air tight containers.



**2. Making Potato chips**

1. Wash and peel potatoes. Cut in thin slices.
2. Put in boiling water for 3-4 minutes.
3. Make a solution in cold water with 5 tsp salt, 1 tsp potassium metabisulphite (for 5 kg potato).
4. Put the blanched potato chips in this solution for 10 minutes.
5. Spread each potato chip separately on a cloth in the sun. Cover with a thin cloth.
6. When dry, cool and store in air tight containers.

Remember, even if the basic principle of dehydration remains the same, you have to adapt the method depending on the food you are preserving.

**5.4 SOME USEFUL TIPS**

Let us discuss some tips which will be useful for taking care of the preserved food items.

1. Take care of hygiene while preparing the food and storing it. The utensils and containers used to cook and store food items should be thoroughly cleaned and dried in sun. The containers should have air tight lids.
2. While preserving pickles take care that a layer of oil is above the vegetables, so that these do not come in contact with the air.
3. While using the preserved food items, take care to use clean spoons. Close the lid immediately after removing the required quantity.
4. For foods like sauces and squashes, the bottles should be sterilized and kept in hot water till they are needed. You could first put the preserved food in the bottles and then sterilize the bottles by heating them in water for 30-40 minutes.

**ACTIVITY 5.3**

With the help of your mother prepare apple jam and lemon squash in your kitchen. Follow each step carefully and take all the precautions. Get these tasted by two family members and friends and note their comments.

**INTEXT QUESTIONS 5.3**

1. Fill in the blanks using appropriate words.
  - (1) Papad is an example of preservation by.....
  - (2) Refrigeration reduces the activity of ..... and.....
  - (3) Dehydration is based on the principle of removal of.....

**Notes**



#### Notes

2. Write True and False against the following statements:
- (i) Addition of spices to pickles allows the micro organisms to grow quickly.
  - (ii) When making squashes, we make use of an acid and a lot of sugar for preservation.
  - (iii) Sterilization increases the activity of enzymes and micro-organisms.
3. Write down the steps you will follow to preserve cauliflower by the dehydration method.

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4. Match the following

- |               |                         |
|---------------|-------------------------|
| i Jam         | a. Spices               |
| ii Papad      | b. Sugar                |
| iii Pickle    | c. Citric acid          |
| iv Milk       | d. Removal of moisture  |
| v Dried-methi | e. Pasteurization       |
| vi Squash     | f. Oil, salt            |
|               | g. reducing temperature |

5. In your garden you have plenty of lemons. List the products you can prepare to preserve them. Describe the process of preparing any one preserved product using lemons.

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6. Match the following:

- | <b>Foods</b>     | <b>Preservatives</b>        |
|------------------|-----------------------------|
| i Apple jam      | a. Citric acid              |
| ii Lemon pickle  | b. Potassium Metabisulphite |
| iii Potato chips | c. Sodium Benzoate          |
| iv Squash        | d. Salt                     |
|                  | e. Sugar                    |

## 5.5 HYGIENE IN HANDLING STORED FOOD

Your family members must be doing bulk purchase of food and storing it at home. You know that they need to be stored properly to be available in good form, when you need them. You have also learnt that food items have a limited shelf life.



### ACTIVITY 5.2

Let us do an exercise about refilling your food store. What shall we do?

1. Remove all the bottles and tins to clean the space. Why do you do that?
2. You can wash all the bottles which are empty and dry them completely. You do not need to wash tins. Why? Wipe them with clean clothes.
3. Replace them on the shelf and clean the floor area. Throw anything which is very old and is spoiled or does not look fresh.
4. Make a list of supplies you need to buy and decide the quality you will buy.

Your store is now clean and you are ready to bring in new food supplies. You need to plan before you go to the market. What information do you need before buying? Yes, you will need to mention the name of the food item its quantity and quality. Where will you go to buy the listed food items? Why? How you will store each item after bringing it home?



### WHAT YOU HAVE LEARNT

1. Food preservation adds variety in the diet, increases shelf life and helps to avoid wastage of food.
2. You can preserve fruits and vegetables by using salt, sugar, oil, spices by
3. dehydration.
4. Microorganisms, presence of enzymes and insects are causes of food spoilage.
5. Salt, sugar and oil are natural preservatives used for preparation of pickles, jams and
6. squashes.
7. Sodium benzoate, potassium metabisulphite, citric acid are chemical preservatives
8. used in products like tomato ketchup, potato chips and jams.



### TERMINAL EXERCISE

1. Write whether the following statements are true (T) or false (F). Give reasons for your answer.
  - (i) Oranges can be kept for a long time without getting spoiled.
  - (ii) While dehydrating fenugreek (methi) leaves these should be put in potassium metabisulphite for 5-10 minutes.



Notes



Notes

2. Write down the steps in preserving pudina (mint) leaves by dehydration method.
3. Match the statements in Column A with those in Column B

#### Column A

- (a) Natural preservative
- (b) Chemical preservative
- (c) Dehydration
- (d) Increasing temperature

#### Column B

- (i) potassium metabisulphite
- (ii) sunlight
- (iii) removing microorganisms
- (iv) salt
- (v) citric acid
- (vi) vinegar



### ANSWER TO INTEXT QUESTIONS

**5.1** i) a      ii) b      iii) c      iv) d      v) a

**5.2** 1. (c)

2. (a) Do not remove the peel
- (b) Pack apple in polythene or aluminium foil
- (c) Keep in the refrigerator
- (d) Make jam

3. Refer text

**5.3** 1. (i) Dehydration

- (ii) enzymes and microorganisms
- (iii) moisture

2. (i) False      (ii) True      (iii) False

3. (i) Clean and dry the plates and tin for drying and storing cauliflower.
- (ii) Wash and cut cauliflower. Remove stems and any decaying portion.
- (iii) Put the cauliflower pieces in boiling water. Take off when they are a little soft.
- (iv) Take out from water and spread on a clean cloth in the sun. Cover with a thin cloth.

(v) When pieces are dry, cool and store in tins.

4. i) b      ii) a      iii) f      iv) e      v) d      vi) c

6. i) e      ii) d      iii) b      iv) a



Notes

## 6

## ENVIRONMENT

You must have noticed over the years that the places where there used to be trees, farms, water bodies, now there are bungalows, houses, industries and multiplexes. Trees are being cut to construct houses. The number of vehicles on road has increased. If you look around, you can see smoke and dust in air and these are increasing day by day. Apart from this, you must have smelt the peculiar foul odour from rotting garbage, high level of noise from vehicular traffic especially in cities. In small towns and villages too, the environment has degraded due to increase in number of vehicles and unsafe disposal of waste. Do you know all these cause a lot of health problems. How are you affected by them and can you do something about it? Yes you can, it is only a matter of thinking creatively and suggesting ideas to solve this problem. In this lesson let us try to find answers to these and many more similar questions.



Fig 6.1: After effects of pollution



### OBJECTIVES

After reading this lesson you will be able to :

- define the terms pollution and pollutant;
- categorize pollution into different types based on its sources;



Notes

- state the effect of pollution on environment and health;
- suggest measures for controlling different types of pollution;
- understand the process of waste disposal and adopt an eco friendly waste disposal plan.

### 6.1 WHAT IS POLLUTION?

Pollution is the addition of any substance to the environment in excess to what is normally present, thereby, making the environment impure. River water gets polluted and become unsafe for human consumption. Air gets polluted due to smoke and fumes. All these make it difficult for us to breathe. You know that smoke is emitted by automobiles, factories and the chullahs. The atmosphere and the soil also get polluted due to industrial, human and animal waste. In addition to these, noise pollutes the atmosphere.

**The term ‘pollution’ is derived from the Latin word ‘Polluere’, which means ‘to contaminate any feature of the environment’.**

What are Pollutants?

The substances which cause pollution are known as **pollutants**. It may also be defined as a constituent in the wrong amount, at a wrong place or at a wrong time. A pollutant is harmful to our health. When you wash clothes or bathe in the river, the dirt and soap are released into water and cause pollution. They make the water dirty or unsafe for drinking. Can you give some more examples of pollutants? Yes, you are right, dust, dirt, garbage, chemicals and industrial wastes are a few examples of pollutants. Can you tell how do they pollute?

What are Pollutants?

These pollutants affect air, water and soil and therefore the pollution is categorized into:

- air pollution
- water pollution
- soil pollution
- noise pollution.



### INTEXT QUESTIONS 6.1

What type of pollution is caused by the following? Tick (✓) the correct option(s). You may tick more than one option wherever required.

- |              |                        |
|--------------|------------------------|
| i) vehicles  | air/ water/ soil/noise |
| ii) industry | air/ water/ soil/noise |

- |                             |                         |
|-----------------------------|-------------------------|
| iii) dust and dirt          | air/ water/ soil /noise |
| iv) chemical wastes         | air/ water/ soil /noise |
| v) washing clothes in river | air/ water/ soil /noise |
| vi) garbage on road side    | air/ water/ soil /noise |

## 6.2 AIR POLLUTION

Simran was suffering from chronic cold and cough for the last one year. She had breathing problem. The doctor diagnosed that she has bronchial asthma due to smoke and dust. Simran was allergic to smoke and dust. She was living in a rented house in a congested industrial locality, doctor advised her to shift to a cleaner and pollution free environment. As she changed her living environment her health improved.

We know that oxygen is the most important component of air. All living beings are dependent on it for life.

Human beings and animals breathe in oxygen and breathe out carbon di-oxide. During the day, plants take in this carbon-di-oxide and give out oxygen.

This helps in maintaining a balance in the composition of oxygen and carbon-dioxide in the air. If things remain this way there is no problem. Most of the time, especially in and around cities, the air that we breath in contains various pollutants.

### 6.2.1 Sources of Air Pollution

Various activities are worth examining because these are major causes of air pollution. The process of combustion causes smoke which may come from burning of household fuel, burning of coal in thermal power stations, exhaust from automobiles, bursting of crackers, smoke from factories, spraying of insecticides and pesticides through airplanes spreads the poisonous substance in a large area of the atmosphere. Use of solvents and spray paints also pollute environment. All these sources produce so much smoke that it is difficult to breathe. Smoke also affects our eyes and causes blindness.

Now, don't you think that human beings are the main culprits in causing pollution. Besides human beings there are some natural sources of pollution too. We don't have control over these pollutants. These include gases emitted from volcanoes, gases produced during forest fires and dust which spreads with the wind.



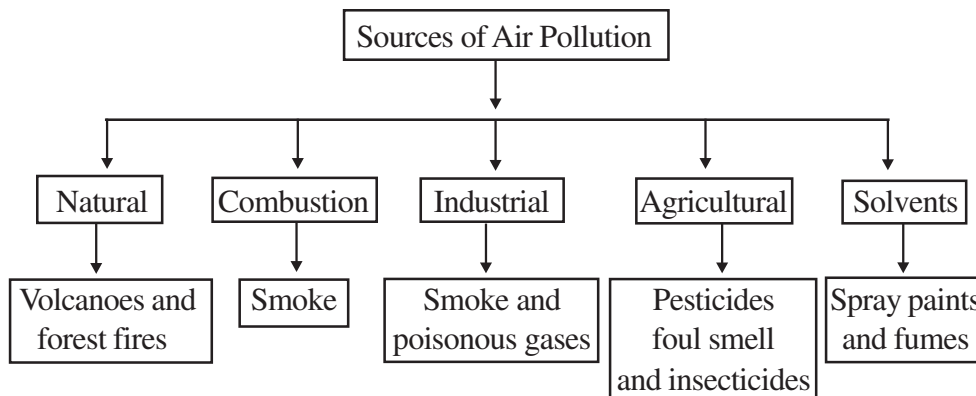
Fig 6.2: Oxygen Cycle





Notes

To sum up we can say:



### 6.2.2 Effects of Air Pollution

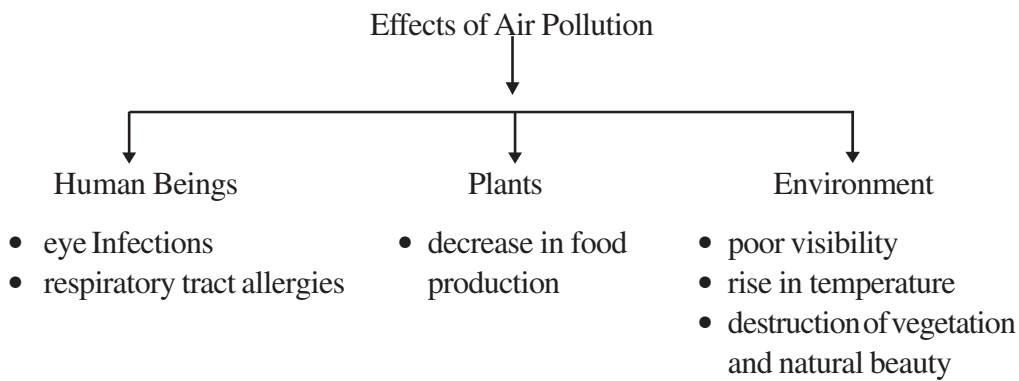
Let us now see some of the effects of air pollution.

Due to pollution, the plants get less sun light thereby affecting their food manufacturing process. This also blocks the pores of leaves and restricts plant respiration process.

You have already read that pollution affects the respiratory system of human beings. It leads to diseases like bronchitis and asthma. Certain types of skin and eyes allergies like rashes and redness are also common.

Pollution affects the environment in a dreadful manner. You must have heard that sometimes serious accidents are caused due to poor visibility due to fog also due to the presence of pollutants like smoke and dust in the air (this is called smog).

During gulf war in 1990-91, the smoke produced by burning of oil fields led to a rise in temperature of surrounding areas that in turn destroyed vegetation and spoilt the natural beauty of the surrounding regions.







Notes

### 6.2.3 Ways to control air pollution

Think of the ways to control air pollution. You can do it through the following:

- i. Use a smokeless chulha at home. Provide a tall chimney to the chulha to carry the smoke away.
- ii. Use biogas which is a smokeless fuel.
- iii. Use a solar cooker at home which uses heat from the sunlight.
- iv. Factories should have chimney filters. This will help in trapping the poisonous substances in the gases that are let out by the factories.
- v. Factories emitting smoke must be located far away from the residential areas.
- vi. Vehicles must be fitted with special devices to reduce air pollution.
- vii. Use unleaded petrol and CNG (Compact Natural Gas) for private and public transport.
- viii. Garbage should not be burnt. It should be disposed of hygienically, preferably through sanitary landfills.
- ix. Roads must be pucca so that dust does not rise and mix with air.
- x. Trees should be planted and cared for, so that these keep the air fresh and pure.
- xi. Crops should be grown in the fields all the year round so that the soil is not exposed to erosion.



#### ACTIVITY 6.1

Visit your neighbourhood and note the measures adopted in the households and factories to control air pollution. Suggest some changes to control air pollution.

### INTEXT QUESTIONS 6.2

1. State which of the following statements are True or False. Also correct the false statements.
  - i) Wind decreases the amount of dust particles in the air.  
\_\_\_\_\_
  - ii) Tall chimneys fitted with filters help to reduce air pollution.  
\_\_\_\_\_
  - iii) Location of factories near residential areas reduces air pollution in cities.  
\_\_\_\_\_



Notes

iv) Adding a tall chimney to the chulha decreases air pollution.

\_\_\_\_\_

2. Unscramble the given alphabets to identify sources of air pollution.

i) TRIULAUGRCAL \_\_\_\_\_

ii) ESNLOSTV \_\_\_\_\_

iii) SRILADNUIT \_\_\_\_\_

iii) BTNOMOICUS \_\_\_\_\_

3. Suggest measures to control air pollution caused by the following pollutants:

Smoke \_\_\_\_\_

Poisonous gases \_\_\_\_\_

### 6.3 WATER POLLUTION

Many of us receive safe water for drinking from taps. It is sent to your houses after cleaning by the municipal authorities. It is also treated to kill the germs. Can you list the characteristics of this water? It is water which has no taste, smell, colour, dirt or germs. Therefore it is called safe water and is suitable for drinking.

**Polluted water may be coloured, may have suspended particles, a foul smell and a bad taste.**

Do you know that all water is not safe for drinking or even for performing other chores in the houses. Unfiltered water from a tap in a public park is muddy and smelly. Sometimes it also has solid particles. Water from well/hand pump/pond/river may also have some or all of these characteristics. You would not like to use this water for drinking, cooking or even for washing your clothes and utensils. This water is polluted.

#### 6.3.1 Sources of Water Pollution

Water gets polluted when the following are thrown in.

- i) **Domestic wastes:** Domestic waste is generated through various household activities. It causes pollution when it is disposed of in a nearby water source (river, lake or pond). Sources of water also get polluted when they are used for bathing animals, washing clothes and washing self after defecation. Very often garbage is also disposed of in this source of water. All these cause water pollution.
- ii) **Industrial wastes:** Waste material that comes from factories contains many harmful and toxic substances. It flows into the rivers, ponds, and seas and causes water pollution.

- iii) **Agricultural wastes:** Chemical fertilizers and pesticides are used in the agricultural farms. In case of rainfall, the runoffs from these agricultural fields gets mixed with water causing the water to pollute, which in turn pollutes the water sources such as rivers, streams and lakes.
- iv) **Oil spills:** Some times oil from oil tankers spills over large areas of a sea. This also causes water pollution. It affects the plant and animal life present in water.



Notes

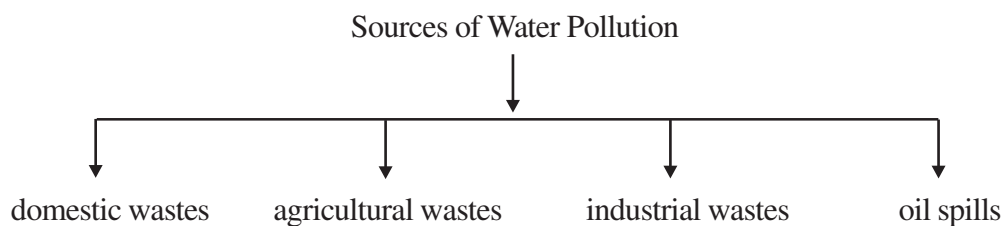


Fig 6.3: Water Pollutants

### 6.3.2 Effects of Water Pollution

Who gets affected by polluted water? Yes, all those who consume this water, i.e., human beings, animals and plants. You must have read in the newspaper, particularly in rainy season that in a particular locality, a large number of people have suffered from cholera or gastroenteritis. Often it is reported that the major cause of such epidemics is non-availability of clean water in that area. Drinking unsafe water causes diseases like cholera, typhoid, diarrhea and dysentery. Bathing in polluted water causes skin diseases and allergies.

Plants and animals such as fish, sea weeds and sea plants also get affected by polluted water. Do you know why? This is because pollution in water causes lesser availability of oxygen to them. They die because they cannot breathe without oxygen.



Notes

### 6.3.3 Ways to control water pollution

Can you suggest some remedies to prevent water pollution? Look at the following list.

- i. Make sure that untreated sewage water is not thrown into the sources of water.
- ii. Industries should not be allowed to throw untreated wastes into the river or pond.
- iii. Defecation in open and near the water source should be discouraged. Use latrines for defecation.
- iv. Latrines, soakage pits, dumping grounds and land fills should be far away from sources of water.
- v. Bathing, washing clothes or bathing animals in or near the harvested water sources should be banned. Rain water in special ponds or wells should be used for washing clothes and bathing animals.
- vi. Rivers and seas should not be used for disposal of garbage.
- vii. If you are using a well or a pond as your source of water, see that it has a concrete wall or parapet and proper pucca or firm flooring around it.
- viii. Water should be stored in clean containers which are kept covered. Use a ladle with a long handle to take water out from its container. Never dip your hand in the water.



#### ACTIVITY 6.2

Make a survey of ten houses to list the ways of storing drinking water or making water safe for drinking. Classify them into the correct and incorrect ways.



#### INTEXT QUESTIONS 6.3

1. Tick (✓) mark the correct option:
  - (i) Water is safe for human consumption only when it is free of
    - a. floating substances
    - b. unwanted smells
    - c. micro organisms
    - d. all the above.

- (ii) Domestic waste causes water pollution by discharging
    - a. waste water through soil to underground
    - b. waste water from toilets, bathrooms, kitchens etc. into water sources such as river, lake and pond etc.
    - c. waste water from factories and power plants etc.
  - (iii) Washing clothes near a water source is harmful because the dirt and soap released
    - a. flow into the water
    - b. are absorbed by the soil to reach sub-soil water
    - c. are left behind to create slush
    - d. are responsible for doing all the above.
2. How do oil spills in water bodies affect the plant and animal life present in them?

## 6.4 SOIL POLLUTION

Soil pollution can be defined as change in the physical, chemical and biological nature of soil to the extent that it has a harmful effect on humans beings and other living beings. Soil becomes polluted when wastes from factories in the form of chemicals and metals are not disposed off properly. Some chemicals can make the soil totally infertile.

If insecticides, pesticides and fertilizers are added in excess, then they penetrate into the plants or fruits and vegetables growing near by. These chemicals then enter our digestive system and make us sick.

Last week Ramesh's son fell sick with stomach disorder. The doctor told him that it was due to his moving barefoot on the soil. When the garbage is left on the soil, it rots and becomes a breeding ground for insects, worms and germs. There may be disease germs already present in the garbage. When people defecate and urinate on the soil then dirt, germs and worms are generated. When somebody walks barefoot on this soil these germs and worms enter their system and cause stomach disorders. They enter into animal and plant systems also through food chain, thus infesting all living beings.

You must have observed that defecating and urinating in the open is a common practice in India. The urine and excreta may contain germs and worms which enter the soil and pollute it. If it rains, the dirt flows into the nearby source of water. Some people have a bad habit of spitting anywhere and everywhere. The sputum not only spoils the surroundings but may carry disease germs. It may dry up and disappear but the germs remain and pollute the soil.





## Notes

### 6.4.1 Effects of Soil Pollution

You have read that improper disposal of domestic waste, defecating, urinating and spitting in the open are all sources of spread of disease germs and worms into the soil. You also know that when we walk barefoot on the soil these germs enter into our body and eventually make us sick. Very often industrial and agricultural wastes leave harmful chemicals in the soil. Plants and vegetables grown in such soil absorb these chemicals. Animals and human beings who consume these plants may fall ill.

### 6.4.2 Ways to control soil pollution

Let us learn about some of measures which can help us to control soil pollution:

**Proper disposal of garbage:** Garbage from homes should be properly disposed of so that it does not allow flies, mosquitoes and cockroaches to breed. At home, it must be collected in a bin which should be kept covered.

- a) **Dump outside the city limits:** If dumping of domestic waste is done in pits which are covered with twigs and plants, the flies and mosquitoes cannot breed on it. After the pit is full, cover it with soil and let the garbage be buried.
- b) **Land fills:** Quite often, especially in big cities, the garbage collected is so much in quantity that small pits are no answer. Low lying areas outside the city limits and away from the source of water are selected and garbage is dumped there every day. Biodegradable material can be recycled. It produces foul smells and attracts birds, animals and insects. But since it is outside the city, it does not affect the people very much except when they pass the ugly site, they get the foul smell.
- c) **Composting:** The garbage from gardens is put into a pit in one corner of the garden. At the end of each day, it is covered with ash and leaves. Gradually the lower layers are converted into compost or manure. This manure can be used for gardening.
- d) **Burning of refuse:** You must have seen gardeners burning leaves and grass which they have removed from gardens. Burning can produce a lot of smoke which causes air pollution. Burning of refuse is banned in metropolitan cities since they already have very high level of air pollution.
- e) **Incineration:** The latest technology in garbage disposal is the use of an incinerator. An incinerator is a furnace in which the garbage is burnt. This is an expensive method because a lot of fuel is required to burn the rubbish. However, it is sterile and safe. The garbage is reduced to a relatively small heap of ash.

None of the methods of garbage disposal mentioned above is satisfactory. Each one has its own merits and demerits. But a lot can be achieved by keeping our surroundings clean if we educate ourselves and our neighbourhood about the proper disposal of garbage from our homes.

Some other measures to control soil pollution are:

- Use of sanitary latrines.
- Limited use of insecticides and fertilizers.
- Use of environment-friendly products.

You will study about the Eco-mark later. This mark is put on goods that are environment friendly. You must prefer to buy such goods.



### ACTIVITY 6.3

Visit your neighbourhood and observe the sources which are polluting the soil in your area. Suggest some measures to reduce this soil pollution.



### INTEXT QUESTIONS 6.4

1. Write two measures to control soil pollution.
2. List three methods of garbage disposal that you have seen or practiced.
3. Tick (✓) the correct answer:-
  - i) This is the latest technology in garbage disposal
    - a. Composting
    - b. Burning
    - c. Incineration
    - d. none of these
  - ii) Harmful chemicals are left in the soil by
    - a. Domestic waste
    - b. Defecation
    - c. Industrial and agricultural wastes
    - d. Spitting
4. Match the following
 

A	B
i) Composting	a. It becomes polluted when waste from factories is thrown on it.
ii) Spitting	b. Can be used as manure for gardening
iii) Soil	c. It may dry up and disappear but germs remain and pollute the soil.
	d. It is banned in the metropolitan cities.



Notes



Notes

## 6.5 NOISE POLLUTION

You enjoy listening to music and chit-chat with friends but the running of machines, the roar of loudspeakers and moving traffic make sounds which are loud and unpleasant. Some sounds are pleasant while others are not. Any unpleasant sound is called **noise**.

### 6.5.1 Sources of noise pollution

Look around yourself and identify the sources of noise pollution. Some of them may be

- i) automobiles, trains and airplanes
- ii) loudspeakers, radios and televisions when played at full volume
- iii) Industries and machines



Fig 6.4: Sources of Noise Pollution

### 6.5.2 Effects

What happens when you hear loud noises for a long period of time? They tend to disturb us, strain our nerves, cause headache and mental disturbance. They can also affect the hearing ability of an individual. You must have noticed that quite often factory workers, pilots and drivers who are exposed to very loud noise over a long period of time, gradually lose the ability to hear soft sounds properly. They become hard of hearing, their ear drums get damaged, sometimes leading to deafness. Exposure to noise pollution can also cause stress and mental instability.

### 6.5.3 Ways to control noise pollution

It is impossible to get rid of all noises completely, but we can definitely reduce them. Following are some of the suggestions for reducing noise pollution:

- Playing radio's and TV's at low volume.
- Avoiding the use of loudspeakers.
- Talking in low tones.
- Using your vehicle horns only when it is necessary.
- Getting silencers fitted in the engine of vehicles.
- Building factories away from residential areas.
- Building airports far away from city limits.



**ACTIVITY 6.4**

Stand at the gate of your house, close your eyes and listen to the various sounds produced in your environment. List down the pleasant and the unpleasant sounds. Suggest some ways to reduce sounds that you would call noise.

**WHAT YOU HAVE LEARNT?**

You have learnt about different types of pollution and their harmful effect on all living beings. You have also learnt about some measures to control different types of pollution. After reading the information, we can say that controlling pollution is almost completely in our hands. We have to reduce the production of smoke by using fuels that are smoke free, by keeping our vehicles in perfect order so that they do not emit smoke, by putting tall chimneys in the factory for smoke to go out in the sky and so on. These little efforts of ours will save people from going blind and suffering from diseases of respiratory tract. It is for us to see that we can reduce noise pollution to a minimum and thus save people from becoming deaf or mentally unstable. We alone can enforce stringent laws to avoid water pollution and thus save people from suffering from diarrhoea, dehydration and hepatitis.

Our world is beautiful. We must enjoy living here. We must not spoil the natural beauty by our foolish acts of defecating, urinating and spitting everywhere, cutting trees indiscriminately and littering our neighbourhood with materials and products which are not environment friendly.

Let us pass a resolution and make a promise to ourselves henceforth. I promise :

- to Plant trees and take care of them.
- not to let people cut trees.
- to use smokeless fuel in my kitchen.
- to protect water source from pollution.
- not to waste purified water.
- to play radio/TV at low volume.
- not to use loud speakers.
- to keep my vehicle pollution free.
- to dispose of garbage in a sanitary way.
- to use sanitary latrines.



Notes



## Notes

- to treat factory waste and sewage before disposal.
- to promote rain water harvesting.
- to filter water for drinking purposes.
- to discriminate and minimise the use of fertilizers and insecticides.
- to use silencers to reduce noise.



## TERMINAL EXERCISE

1. Define the terms pollution and pollutant.
2. What are the sources of air pollution?
3. How can you control soil pollution?
4. What are the effects of noise pollution?
5. Mention two pollutants which pollute both soil and water.
6. How can you reduce pollution caused by smoke in your neighbourhood?
7. Why should we not defecate, urinate and spit on soil?



## ANSWERS TO INTEXT QUESTIONS

- 6.1** 1. i) air pollution, noise pollution  
 ii) water pollution, air pollution  
 iii) air pollution  
 v) water pollution, air pollution  
 vi) water pollution  
 vii) soil pollution
- 6.2.** 1 i false - Wind increases the amount of dust particles in the air .  
 ii. true  
 iii. false- factories should be located away from cities.  
 iv. true



Notes

2.
  - i) agricultural
  - ii) solvents
  - iii) industrial
  - iv) combustion

3. use of biogas, smoke less fuel. CNG should be encouraged.

6.3. 1 

- i) d
- ii) b
- iii) d

2 Refer text

6.4 1. Refer text.

2. Refer text.

3. 

- i) c
- ii) c

4. 

- i) b
- ii) c
- iii) a



## HEALTH

How did you feel the last time your sister fell sick? You must have observed that everyone in the family was worried and showed concern about her well-being. Your parents took her to the doctor. Your mother was concerned about her medicines and diet. Due to ill health she became irritable and didn't like to eat. She became very weak and was unable to perform her daily activities. Don't you agree that all the family members were affected due to her ill health? Do you realize how important health is for all of us?

Good health of an individual is important in order to ensure happiness and our ability to work. There are many factors which affect our health. Some of these factors like balanced diet, clean water and clean environment have a positive impact on health while others such as disease causing organisms and unhygienic conditions have a negative effect on our health.

In this lesson you will learn that good health implies both physical and mental well being and requires consistent efforts to maintain it at both personal and community levels. You will also realise that just as good personal health is a necessity, community health is of great importance too. In addition, after reading this lesson you will be able to appreciate how individual and community health reinforce each other.

This lesson aims at guiding you to live a healthy life.



### OBJECTIVES

After studying this lesson you will be able to :

- understand health and its aspects;
- appreciate the importance of health;
- identify the indices of good health to assess health status;

- understand immunity and its importance in maintaining family and community health and
- motivate the community to follow the immunization schedule.

## 7.1 HEALTH

Health is of prime concern for all. You must be familiar with the famous saying “health is wealth”. When you are healthy, you enjoy your work and life to the fullest. It is the solid foundation on which your happiness rests. To attain good health we need to make efforts and develop certain habits.

Health is a very commonly used term and can be interpreted in different ways by different people. What is your idea? Is it mere physical fitness or just absence of disease? Before proceeding further, Let us know your definition of health. Write it down.

Health is \_\_\_\_\_

**Definition of health:** According to World Health Organization (WHO), health is a “**state of complete physical, mental and social well being and not merely the absence of disease.**” It means proper functioning of both, the body and the mind.



World Health Organization

Fig.7.1

People enjoying good health are more cheerful, energetic, full of life, more efficient at work and therefore more productive.



### ACTIVITY 7.1

List any two points of similarities and differences between your definition of health and that given by WHO.

Points that are similar a) \_\_\_\_\_

b) \_\_\_\_\_

Points that are different a) \_\_\_\_\_

b) \_\_\_\_\_



Notes



**Notes**

Try to recollect the last time you were sick or suffered from a major illness. Were you not irritable? An unwell person may lose temper for no reason and does not feel like working because his/her body becomes weak.

In contrast, when you are healthy and with your friends, you feel happy and enthusiastic and are likely to enjoy doing the work assigned to you.

How do you feel during exams? Stress may cause rise in blood pressure or may lead to sleeplessness. However, some amount of stress also helps you to perform well. Overall health is achieved through a combination of physical, mental and social well being. The three different dimensions of health together are commonly referred to as **health triangle** as shown in figure 7.2.



**Fig.7.2: Health triangle showing three dimension of health**

### 7.1.1 Signs of good health:

Given below are some of the signs of good physical, mental and social health of a person. They help in assessing our state of health.

#### A. Signs of good physical health

When you are in good physical health you

- are energetic and alert;
- have normal weight for your age and height;
- have bright and shiny eyes;
- have clean and clear skin;
- have normally growing hair of natural colour and texture;
- have odourless breath;
- have good appetite and
- have sound sleep.



**Fig.7.3**

Such people are active, responsive and happy, can work hard and perform well.

#### B. Sign of good mental health

If you have good mental health, you shall have

- control over your emotions;
- balanced feelings, desires, ambitions and ideas;

- ability to accept the realities of life and face them;
- confidence in your abilities;
- ability to cope with day to day stress of life;
- helpful attitude towards others, and
- the ability to seek help when needed.

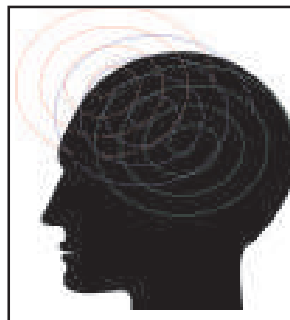


Fig.7.4

Such persons can work productively and can make a contribution to the society.

**C. Signs of good social health**

If you have good social health you shall

- have a positive attitude towards life;
- get along well with others;
- have a pleasant personality;
- fulfil responsibilities and duties towards others;
- have healthy interpersonal relationships and
- be able to accept disagreement positively.



Fig.7.5



**ACTIVITY 7.2**

Based on the WHO definition of health, complete the table given below. Provide three reasons for your conclusion. Two cases are done for you.

Name	Characteristics of the person	Do you consider the person healthy? Answer in 'Yes' or 'No'.
1 Reshma	cheerful, takes interest in work, helpful to others.	Yes
2 Kabir	lethargic, physically weak and does not want to go for work or play.	No
3 _____ (yourself)		
4 _____ (any friend or family member)		



Notes



Notes

### 7.1.2 Factors affecting personal health

Care of oneself to remain healthy and free from diseases constitutes personal health. Different aspects of personal health are given below:

#### A. Balanced Diet

As you have already studied, a balanced diet is one containing carbohydrates, proteins, fats, vitamins, minerals and fibers in correct proportion to meet the nutritional requirements of a person at a certain age. The energy requirement for an adolescent (teenage) boy is about 2400 to 2600 calories whereas for an adolescent girl, it is 2050 calories. The food pyramid depicts the different categories of food and the quantities that we need to include in our diet (refer to the food pyramid explained in Chapter 5 -Food Groups).

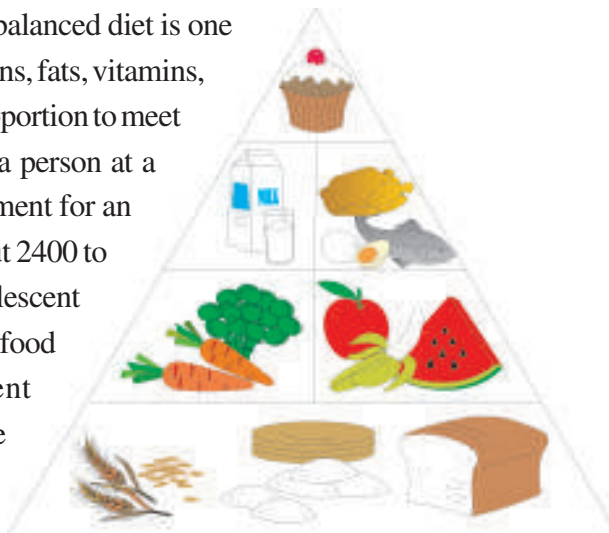


Fig.7.6 Food Pyramid

#### B. Personal Hygiene

Health and hygiene go together. To keep yourself free from diseases and to have good health you need to practise hygiene constantly. The various practices that help in maintaining health constitute hygiene. The word hygiene comes from a Greek word *hygiea* that means goddess of health. Adoption of hygienic practices prevents many diseases such as diarrhea, cholera, typhoid, worm infections, jaundice, skin diseases, tuberculosis and many more.

Maintaining good health is a desirable goal. It is important to know how we could possibly achieve good health. Elders in the family and community often advise you to remain healthy.



#### ACTIVITY 7.3

In the table below, some of the 'healthy habits' commonly advised by adults have been listed. Write your ideas about healthy habits and list them according to your preference.



## Common practices to remain healthy

Suggestions by adults	Your idea of healthy habits
<ol style="list-style-type: none"> <li>1. Brush your teeth, cut your nails.</li> <li>2. Take bath daily, wear clean clothes.</li> <li>3. Eat nutritious food.</li> <li>4. Have regular eating habits.</li> <li>5. Exercise regularly.</li> </ol>	



Notes

There are some simple activities in our day to day life that prevent infectious diseases. These activities are:

- **Regular toilet habits:** Regular bowel movement keeps you physically fit and healthy.
- **Washing hands before eating:** Hands may carry many disease causing germs and therefore must be washed before eating anything and after using the toilet. Washing hands with soap makes them germ free. Ash may be used for washing hands where soap is not available.
- **Bathing regularly and wearing clean clothes:** Dirt is a congenial place for germs to grow. Bathing regularly keeps your body free of dirt, body lice and germs.
- **Cleaning the teeth:** After having food, some food particles may remain stuck to our teeth which become a medium for the germs to grow. The germs harm our gums and teeth, and cause bad breath. Brushing teeth every day prevents germs to grow between the teeth. Brushing teeth before going to bed is a very good habit.
- **Washing hair, cleaning eyes, ears and nails:** Regular washing and combing of hair helps to prevent accumulation of dirt and dust and keeps germs away. Keep nails short and clean. Nail biting is unhygienic and must be avoided. Washing eyes with clean water keeps them free from dust and germs.



**Fig.7.7** Brushing teeth twice a day is important to maintain good hygiene.



Notes

### C. Domestic Hygiene

We dust and mop our house to keep it clean and free from dirt, flies and germs. Disposal of garbage in bins ensures that our immediate surrounding remains clean and do not become a breeding ground for disease causing organisms. Used sanitary napkins need to be wrapped in an old paper and put only in a dust-bin and not any where else as they too provide ground for germs to grow.



**Fig.7.8** Materials you need to maintain a healthy environment at home

### D. Food Hygiene

- Fruits and vegetables should be washed in clean water to make them free from germs and pesticides (chemicals sprayed on plants to keep them insect free) before cooking and consumption.
- Water used for drinking, cooking, washing utensils should be from a clean source such as tap, hand pump set up by the municipal corporation or panchayats and covered well.
- Food should be prepared in a clean kitchen and in a clean manner.
- While cooking food, it is important to heat it at high temperature to kill germs present in it.
- Cooked food should be eaten fresh or covered and stored in cool, dry and insect proof place.
- Milk should be stored either in the refrigerator or if kept outside, it should be boiled again before use to make it germ free.

### E. Exercise

Regular walking and physical exercise have good effect on health. Outdoor games and sports keep the heart and circulatory system in good condition. Walking keeps the joints and bones healthy.

### F. Regular sleep and relaxation

After the day's hard work you become tired. Your mind and body need rest. A little nap, regular sleep and relaxation for some time will make your body and mind fresh again. You are filled with energy again. These play an important role in maintaining good health. This also helps in the repair of body tissues.



**Fig.7.9**

**G. Avoid smoking, alcohol and drugs**

To keep healthy, one should avoid smoking, chewing of betel nut, gutka and tobacco and drinking alcohol. Intake of these substances may lead to health problems such as liver damage, kidney failure, heart failure and cause damage to teeth, gums, and other tissues of the mouth. You may have noticed, spitting is quite common among people who chew betel nut, gutka and tobacco. Spitting in public places not only disfigures them, it creates an unhygienic conditions also. You must stay away from such habits and try to convince others also.



Say No to SMOKING



Say NO to DRINKING ALCOHOL



Say NO to chewing of BETELNUT, GUTKA and TOBACCO

Fig.7.10

**ACTIVITY 7.4**

Check list for your personal health status.

Given below are some characteristics commonly observed in healthy individuals. Read them carefully and mention whether these characteristics are present in you. Respond by putting a tick mark (✓) against each feature in the space provided.

<b>A. Characteristics of personal health</b>	Yes	No
Are you energetic and alert?		
Do you play, work and study regularly?		
Do you have normal weight for your age? (refer to table 7.1)		
Do you bathe regularly and wear clean clothes?		
Do you have shiny, good textured hair?		
Do you have a clean skin without rashes?		
Do you have good appetite and eat well?		
Do you have regular toilet habits?		
Do you have a clean breath?		
Do you get sound sleep?		



Notes



Notes

B. Characteristics of social health	Yes	No
Whenever there is an argument with your friends or elders you listen to them and pay attention to their views.		
Irrespective of the time you go to bed, you are able to get up in the morning without feeling lazy and attend to your jobs or duties well.		
When facing a different situation or challenge that you are unable to meet, you feel bad and keep to yourself rather than seeking help from others as it would lower your self-esteem.		

Check your answers given in the “Answer to Intext Questions”

**Table 7.1 Age wise weight and height (according to National Center for Health Statistics, NCHS)**

Age	Boys		Girls	
	Weight (kg)	Height (cm)	Weight (kg)	Height (cm)
14 years	47.0	160.0	48.0	155.0
15 years	52.6	166.0	51.5	161.0
16 years	58.0	171.0	53.0	162.0
17 years	62.7	175.0	54.0	163.0
18 years	65.0	177.0	54.4	164.0



**INTEXT QUESTIONS 7.1**

1. Why do we need to be healthy? List three reasons.
2. In the table below, characteristics of a person are listed. Write the dimension of health (physical/mental/social) for each.



Notes

Characteristics of a person	Dimensions of health
has good appetite	
has ability to cope with stress	
has a pleasant personality	
has sound sleep	
has control over his emotions.	
has normal weight and height for his age	
has healthy interpersonal relationships	
is confident	
has a positive attitude towards life	

3. List two hygienic habits followed by you for each of the following:

Personal hygiene		
Domestic hygiene		
Food hygiene		

- Identify one healthy habit. How will you motivate your younger brother to practise this habit?
- Your mother has prepared lunch in the morning at 7 a.m. and it will be served at 2.00 p.m. List any two precautions you will take to store it to keep it healthy.
- Which one of the following children is healthy and why?



I



II



III



## Notes

### 7.1.3 Community Health

In the previous section you studied some of the ways that will help you to remain healthy. However can you remain healthy just based on your own efforts?

Consider the following situations:

1. In the absence of potable water your mother collects water from a hand pump or a covered well in the neighborhood.
2. Garbage is not collected for many days, bad odour emanates and mosquitoes and flies breed.
3. There is an outbreak of an infectious disease like dengue or malaria.
4. A natural calamity like Tsunami strikes certain part of your country.

How is the health of the population in such areas affected? Does it have both short term and long term effect? Try to find answers.

**Community health** is the practice of preventing disease and promoting health of a population through the organized efforts of society, public and private organizations, communities and individuals. It aims to improve the health of the entire population and focuses on preventing diseases rather than their treatment.

There are various activities and **programmes** undertaken by the government and or local organizations to maintain good health of the people and keep them free from diseases.

Some of these activities and programmes are listed below:

- Maintain cleanliness of the villages, towns and cities so that disease causing agents do not multiply. This helps in checking spread of diseases.  
It includes garbage disposal, supply of clean drinking water, waste collection etc. from the localities, thereby checking the spread of disease causing vectors (mosquitoes and flies).
- Ensure that standards in food stores, meat and milk outlets are strictly followed.
- Organize outreach services for health promotion and prevention of diseases, including.
  - a) Immunization programmes for infants and children.
  - b) Various awareness programmes against the spread of diseases like malaria, AIDS, polio, leprosy and hepatitis B.



Fig.7.11

- Organize mid day meals in schools to provide adequate nourishment to growing children.
- Undertake various health programmes such as:
  - a) The National Malaria Eradication programme
  - b) The Tuberculosis (T.B) Eradication programme
  - c) National Immunization programme
  - d) National Pulse polio programme.
- Set up hospitals and dispensaries to provide medical facilities to the general public. The government hospitals and health centres provide services either free of cost or at highly economical rates.

You can also contribute to keep your environment clean. For this you need to:

1. keep your house clean- a house should not only be swept and cleaned every day, it should also be whitewashed and fumigated at regular intervals to keep the insects and other disease causing agents away.
2. keep your neighborhood clean- managing the garbage and its proper disposal is also an important task. Garbage thrown anywhere other than the garbage bins makes the surroundings unclean and becomes a breeding ground for mosquitoes, flies and other insects besides allowing germs to grow. This is because the organic waste decomposes with the help of bacteria. Garbage bins should be covered and also be cleaned after emptying.



Fig.7.12



### ACTIVITY 7.5

Have you heard of garbage bins with labels such as “Biodegradable wastes” and “Non degradable waste”. Have you ever noticed the colour of those bins? Yes, they are blue and green. What do the colours blue and green signify? What kind of garbage would you throw in either of these bins? Some of the common garbage items generated in our homes are: waste paper, plastic carry bags, vegetable peels, used batteries, stale food items, used pens, old clothes and broken glass. Identify the garbage items you will put in each of these dust-bins. You may also refer to lesson no. 12 ‘Housing’ about waste disposal.

*Compare your answers with the correct answer given in the section “answers to intexts questions 7.2”*





Notes

Biodegradable waste products typically originate from plant or animal sources and can be broken down by other living organisms. These include, green waste, food waste, human waste, sewage and others. These waste products are less polluting. In contrast, non-biodegradable waste products cannot be broken down by living organisms; for example, non-biodegradable plastic products. These waste products accumulate and are more damaging to our environment. In the interest of a cleaner environment, each one of us should decrease the use of items that lead to non-biodegradable waste. For example, decrease use of plastics, by carrying clothes or jute bags for shopping.

It is the government’s responsibility to provide civic amenities like water, electricity, roads and garbage disposal facilities. However, every individual who uses these facilities has a responsibility of maintaining them. Taking this idea forward, the Government of Delhi has launched a unique scheme named “Bhagidari” which aims at involving people’s participation, the Government Departments and citizens groups like Resident Welfare Associations (RWAs) and Market and Traders Associations (MTAs) in order to work out solutions for common civic problems.



INTEXT QUESTIONS 7.2

- List some of the activities that are organised by the government in your locality to maintain public health.

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- Samina’s family members are expert house keepers. Their bathrooms are as clean as the bedrooms and the kitchen. But when Samina steps out of her house, foul odour irritates her nostrils; her feet sink in garbage piles and pot holes. Neither the local government authorities nor anyone in Samina’s neighborhood seems to care. She is very sad and wants to do something to change this situation.



Fig.7.13





Notes

Taking cue from the ‘Bhagidari’ initiative launched by the Government of Delhi, please make four suggestions for Samina’s community to make their surroundings clean.

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### 7.1.4 Immunization: Protection against Certain Communicable Diseases

You are exposed to a large number of disease causing agents every day. Your body is able to ward off most of these foreign agents. This overall ability of the body to protect itself against the foreign agents including the disease causing organisms is called **immunity**. It is of two types:

- a) Natural immunity
  - b) Acquired immunity
- a) **Natural immunity** - It is present from the time of birth and provides a general protection against the entry of any foreign agents into our body. Even if pathogens (refer to lesson No. 32 – Health and Hygiene of Science and Technology at Secondary level) gain entry into the body, they are destroyed. Some of the components of natural immunity are the various types of barriers such as the skin and the mucous membranes that prevent entry of foreign agents into the body. Hydrochloric acid in the stomach kills the germs entering our body along with food. If a foreign agent enters the blood stream, special type of white blood cells (WBC) known as phagocytes destroy it. Phagocytes engulf the foreign particles and digest or destroy them.

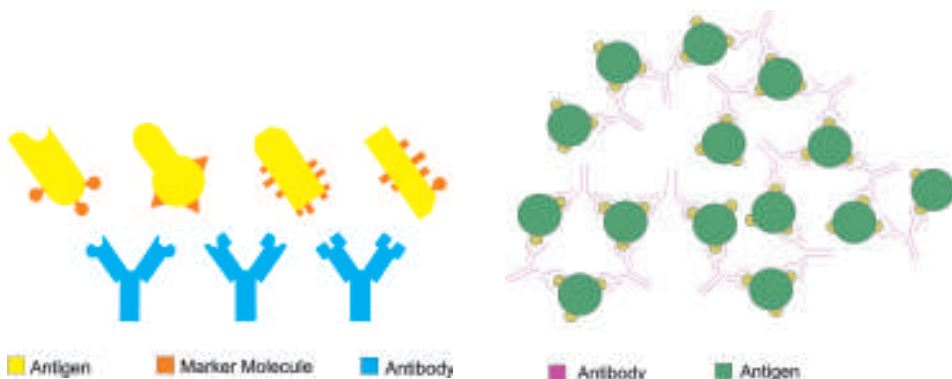


Fig.7.14



## Notes

- b) **Acquired immunity**- It develops during one's life time and is therefore known as acquired immunity. It works on the simple principle of producing antibodies in response to antigens (refer to lesson No. 22 – Life Process of Science and Technology at Secondary level). Any foreign particle or microorganism against which an antibody is generated is called an antigen. Antibodies are protein molecules produced by special defense cells of the body called **lymphocytes**. As you may recall, they are a type of WBC.

**We can acquire immunity :**

- 1) Through exposure: Any previous infection or exposure to a disease gives immunity against the disease. This is the **natural** way to acquire immunity e.g. if a person suffers from a disease such as mumps or measles, he/she develops life long immunity against the disease.
- 2) By vaccination: Vaccines are inactivated or weakened pathogens or their products that function as antigens or foreign agents. When vaccines are introduced in the body, they activate the immune system against the specific pathogen so that if the pathogen actually infects in the future, the immune system is equipped to provide protection against the infection. Vaccines are sufficiently inactivated or diluted so that they do not cause disease in the body. The duration of protection provided by the vaccines varies across different vaccines. In order to reinforce the immunity provided by the immunization, booster (repeat) doses of certain vaccines are recommended. For example, the immunization against diphtheria, pertussis and tetanus (DPT) requires booster dose for providing protection against infections. This forms the basis of our national immunization programme that seeks to control certain vaccine preventable diseases.



Fig.7.15

**Immunization Schedule**

You may be aware of various immunization programmes that are run by the government for the general public especially for pregnant women, infants and children. Table.7.2 below, illustrates the primary immunization programme for a new born baby and the subsequent booster doses. Immunization is given free of cost, at all government dispensaries and hospitals. Ask your parents about the vaccines given to you and your siblings during childhood.

Table.7.2 Immunization schedule

Vaccine	Age				
	Birth	6 weeks	10 weeks	14 weeks	9-12 months
<b>Primary vaccination</b>					
BCG	✓				
Oral Polio		✓	✓	✓	
DPT		✓	✓	✓	
Hepatitis B		✓	✓	✓	
Measles					✓
<b>Booster Doses</b>					
DPT + Oral Polio	16-24 months				
DT	5 years				
Tetanus toxoid (TT)	At 10 years and again at 16 years				
Vitamin A	9, 18, 27, 30 and 36 months				
<b>Pregnant Women</b>					
Tetanus toxoid: 1 <sup>st</sup> dose	as early as possible during pregnancy				
2 <sup>nd</sup> dose	1 month after 1 <sup>st</sup> dose				
Booster	within 3 months				

Primary immunization is scheduled in the first year of life to provide optimal protection to the infant. Any delay in following the immunization schedule exposes the infant to the risk of these infections. Hence, the timing, sequence and frequency of the immunization should be followed as detailed in the chart above.



### ACTIVITY 7.6

Find a child below the age of two years in your family or neighbourhood. Ask the parents of the child about the child's immunization status and compare it with the immunization schedule given in Table.7.2 and fill up the table below:

Name of the child:

Date of birth:

Age of the child record:



Notes



Notes

Vaccine	Age				
	Birth	1½ months (6 weeks)	2½ months (10 weeks)	3½ months (14 weeks)	9-12 months
BCG					
Polio					
DPT					
Hepatitis					
Measles					

Has the child received all the immunizations as per the schedule? Yes/ No (encircle the correct response)

If the child has received all the immunizations on time, congratulate the parents and find out from them at least two reasons for why they followed the schedule.



Fig.7.16. A child being given polio drops

S.No.	Reasons
1.	
2.	

If a child has incomplete or delayed immunization, give two important reasons to the child’s parents to get their child immunized on time.

You must have seen posters on “Pulse- Polio Abhiyan” from time to time. What are they about? The Government is trying to eradicate this deadly disease from the country. All the children under the age of five years should receive polio drops in these immunization drives so polio can be eradicated and no child is ever crippled by this disease. For the convenience of the public, Pulse Polio abhiyan is usually organized on Sundays.



### INTEXT QUESTIONS 7.3

1. Complete the table:

<i>S.No.</i>	<i>Preventive actions</i>	<i>Name of the diseases that are prevented</i>
i.	Set of mosquitoes net	
ii.	Sanitary condition and proper disposal of human excreta	
iii.	BCG vaccine	

2. Select the killer diseases that are targeted in the primary immunization programme of the Government of India.

BCG, Polio, TT, Hepatitis B, DPT, Vitamin A, Measles

3. Fill in the correct option:

- i) Type of immunity provided to a newly born child by mother's milk \_\_\_\_\_ (natural immunity/ acquired immunity)
- ii) Vaccine against TB \_\_\_\_\_ ( BCG/ DPT/TT)
- iii) Polio vaccine is first given at the age of \_\_\_\_\_ ( 10 weeks/ 6 weeks/ 1 year)
- iv) Day of week chosen for Pulse Polio \_\_\_\_\_ (Wednesday/Sunday/ Friday)



### WHAT YOU HAVE LEARNT

- Health is not mere physical fitness or absence of diseases. It is a “state of complete physical, mental and social well being.”
- A person with good physical health is energetic, alert and is able to perform his/ her jobs well.
- Persons, who have good mental and social health have control over their emotions, do not worry unnecessarily and are confident. They take care of themselves and fulfil their duties towards others in the society.
- Hygiene deals with various practices, principles or habits that help in maintaining health. Hygiene deals both at personal as well as at community level.



Notes



- Balanced diet, personal hygiene, domestic hygiene, clean food, exercise, regular sleep habits and abstaining from drugs are some of the important prerequisites of personal health.
- Provision of clean environment, safe drinking water, health services and immunization against common infectious diseases is needed for a healthy community life.
- Vaccines are available against some seriously debilitating diseases such as TB, polio, tetanus, pertussis, diphtheria and hepatitis.
- The ability of the body to fight the disease causing organisms is known as immunity. It can be inborn or acquired during our life time.
- Acquired immunity develops either when we survive a disease or through vaccination. This is active immunity where we develop antibodies against a pathogen. In passive immunity, readymade antibodies are injected into the body.



### TERMINAL EXERCISE

1. What role does vaccination play in control of diseases? Explain.
2. Define “health” according to WHO.
3. How is natural immunity different from acquired immunity?
4. List at least four steps essential to remain healthy.
5. How are personal health and community health related? Explain with the help of an example.
6. What precautions will you take while storing food to prevent it from becoming unhealthy?



### ANSWERS TO INTEXT QUESTIONS

#### 7.1

1. We need to be healthy because healthy persons are energetic, efficient, happy and productive.
2. Physical, mental, social, physical, mental, physical, social, mental, social

3. Personal hygiene	washing hands before eating	bathing regularly
Domestic hygiene	regular dusting & mopping of the house	proper disposal of garbage
Food hygiene	food should be prepared in clean kitchen	fruits & vegetables should be washed before consumed

4. Brushing teeth regularly. Brushing teeth removes the food particles that get stuck to our teeth. These food particles allow germs to multiply and harm our teeth and gums and lead to bad breath. Thus brushing teeth daily is very important.
5. Food should be covered, stored in cool and insect proof place.
6. III, is happy, energetic and alert.

### 7.2

1. Cleanliness of the locality by removal of garbage, supply of clean drinking water, fumigation, organizing immunization programmers, ensuring food standards in food stores and milk outlets.
2. Discussions with neighbours convincing them about the association between healthy population and clean environment and therefore the need to keep their neighborhood clean; forming peer groups and distribution of hand bills to educate people around, making posters depicting the ways of keeping the place clean, arranging for cleaners to collect the garbage/contact the municipality for providing garbage bins and garbage collection, and also for repair of the roads.

### 7.3

1. (i) malaria, dengue                      (ii) hepatitis    (iii) tuberculosis
2. BCG, Polio, DPT, Hepatitis, Measles
3. (i) Acquired            (ii) BCG            (iii) 6 weeks    (iv) Sunday





# COMMUNICABLE AND LIFE STYLE DISEASES

You have learnt about the role of nutrition and environmental sanitization for maintaining goods. We all know that for happy living, it is necessary to remain healthy and free from diseases. However, you must have seen people suffering from diseases. A disease makes a person weak and vulnerable to more suffering. Do you know that a disease, if prolonged, may also result in disability or death? Diseases may be the result of infection in the body such as jaundice or diarrhea. They may be a result of faulty eating and living habits (life style) like diabetes and hypertension. Many of these diseases such as hypertension, heart disease and diabetes can only be controlled but not cured. In this lesson, you will study about diseases which occur because of infections and faulty life style. You would also learn about their prevention, cure and control in order to lead a productive life.



## OBJECTIVES

After reading this lesson you will be able to

- explain the terms communicable and lifestyle diseases;
- identify the causes of communicable and lifestyle diseases;
- recognize the signs and symptoms of communicable diseases;
- suggest measures to protect yourself communicable and lifestyle diseases;
- list the factors causing life style diseases and
- adopt healthy practices to maintain good health.

### 8.1 WHAT IS A DISEASE?

**Disease is a state of discomfort in which the normal functioning of the body is affected.** The state of disease is the opposite to the state of health. Do you remember





Notes

how health has been defined? Go back and read Lesson 7. You must have noticed that when a person has a disease there are certain signs and symptoms. Each disease has associated signs and symptoms which are particular to that disease only. Try to recollect how you felt when you were suffering from common cold? You had a sore throat, a blocked nose, body ache and fever. However, when your grandmother had hypertension she was restless, disoriented, and fatigued. She was advised rest and asked to avoid physical and mental stress. You have seen that in both the cases the patient was uncomfortable. In this lesson we will discuss two types of diseases:

- Communicable diseases and
- Life style diseases

## 8.2 IMMUNITY

Sometimes it happens that your family members or friends may have viral fever but you do not catch it? Why do you think this happens? This happens because your body's defense system protects you from germs. In other words you had **immunity** to viral fever. Do you know how our defense system functions? Our body's defense system consists of white blood cells which act as soldiers to fight germs. The white blood cells produce a substance called **antibodies** to fight germs. In the fight between the antibodies and germs, if the antibodies are able to resist and destroy the germs then the infection is prevented and the person is said to be having immunity. However, if the germs manage to overpower the antibodies, the symptoms of disease appear. In other words, the person does not have immunity to the disease. **Immunity is the ability of the body to resist a particular disease.** You have learnt about immunity and immunization at length in Lesson 7.

## 8.3 COMMUNICABLE DISEASES

The diseases that spread from one person to the other are called **Communicable Diseases** or infectious diseases. These diseases are caused by infection which spreads or is communicated through the medium of touch, sharing towel, handkerchief etc. of the patient, air, food or water or through sexual contact with an infected person. Influenza, polio, typhoid, measles, mumps, chickenpox, tuberculosis (T.B.), sexually transmitted infections and AIDS (Acquired Immuno Deficiency Syndrome) are some of the communicable diseases.

### 8.3.1 What Causes Communicable Diseases?

Communicable diseases are caused by very tiny organisms called germs and parasites. These germs are present everywhere- in air, water, soil, etc. When germs enter a healthy body, they multiply and upset the normal functioning of the body. This produces symptoms of a disease. If a person consumes infected food or water the



symptoms of disease may not develop immediately. The germs take some time to grow in sufficient numbers to produce the symptoms of the disease in body. This gap of time between the entry of germs into our body and appearance of symptoms of the disease is called the **incubation period**.

A person suffering from typhoid, must have consumed food infected with typhoid germs about 2-3 weeks earlier, but the symptoms appear some time afterwards. Incubation period is different for different diseases. During this period, the person may remain perfectly healthy but is a carrier of the disease.

### 8.3.2 How Do Communicable Diseases Spread?

You know that germs are present everywhere around us and they can spread through four modes:

- (i) Food and water
- (ii) Air
- (iii) Contact
- (iv) Insects

Let us now study these in detail.

#### (i) Food and Water

You must have often being told to keep food and water covered. Can you say why you are told to do so? Yes, you are right. Uncovered food and water are likely to get contaminated with germs and spread diseases. Do you know how else food and water can get contaminated? It can get contaminated through:

- i) unhygienic conditions of preparation, serving and storing
- ii) dirty hands and utensils and
- iii) houseflies which transfer germs from rubbish and garbage to food.

Drinking water should be taken from a safe source. Water which you get from the municipal taps is safe to drink. Can you tell why? This is because tap water is cleaned and treated by certain methods that kill germs before it is sent to our homes but water from wells, ponds, streams and even hand pumps is generally unsafe and may contain disease-causing germs. Diseases such as diarrhea, hepatitis, cholera and typhoid are spread in this way.

#### (ii) Air

Suppose a person suffering from influenza, conjunctivitis or mumps, coughs or speaks loudly or sneezes- what do you think can happen? Yes, you are right. The patient throws germs of that disease into the air which enter our body when we breathe in. So we are likely to catch the disease. The air in crowded places, poorly ventilated houses

and cinema halls is more likely to contain disease-causing germs. That is the reason why we should avoid visiting crowded places when we are suffering from communicable diseases.

### (iii) Contact

A communicable disease may also spread through contact, which may be:

- Direct contact
- Indirect contact

Direct contact means you actually touch a person who has a disease or have sexual contact with him/her. Diseases like common cold, diphtheria, cholera, tuberculosis, pneumonia, measles and meningitis are caused through direct contact with the patient. Diseases like hepatitis B, genital warts, herpes, syphilis, gonorrhoea and HIV/AIDS are caused by sexual contact with an infected person.

You are set to have indirect contact with a patient when you use anything that he/she may have used like a comb, towel, cup, etc. For example, suppose your brother is suffering from influenza. He covers his mouth with his hand when he coughs and then shakes hands with his friend. The disease germs are passed through direct contact from your brother to his friend. However, if he gives you a glass of water without washing his hands, then the germs are passed from his hand to the glass and from the glass to you. This is indirect contact. You may also contact diseases indirectly by touching objects in public place like hospital, cinema halls and buses. Can you think of more examples to explain direct and indirect contact as a mode of spread of disease?

### (iv) Insects

Many diseases are spread through insects. Flies and cockroaches carry germs from rubbish and garbage on their bodies and infect the food on which they sit. This causes diseases like cholera. Mosquito bite causes malaria, dengue and Japanese encephalitis.

### 8.3.3 Preventive Measures

Now that you have studied how communicable diseases spread, can you think of some ways in which they can be prevented? Let us list some precautions that should generally be observed.

- (1) The personal belongings of the person suffering from any communicable disease, that is, clothes, utensils, should be kept separately.



Fig 8.1



Notes



Notes

- (2) Keep water at home in clean, covered containers. Drinking water should be boiled for 10 minutes to ensure that it becomes free of germs. Boil milk before using it.
- (3) All food, even left-over scraps, vegetables, fruits, sweets, milk etc. should be kept covered.
- (4) Avoid eating and buying cut fruits and vegetables from the market, especially if kept uncovered.
- (5) Wash all utensils before using them for storing food, milk or water.
- (6) Wash your hands thoroughly before cooking food, before eating food and after using the toilet.
- (7) Keep the house and place of work well-ventilated in order to allow adequate amount of sunlight and air to come in.
- (8) Avoid crowded places such as cinema houses, especially during an epidemic.
- (9) Maintain personal hygiene by having regular bath, keeping nails clean and cut short. Wash your hair regularly.
- (10) Keep your house and surroundings clean. Do not let garbage accumulate. See that drains are clean and covered. See that all doors and windows have a wire mesh to prevent entry of flies and mosquitoes. Do not defecate in open, use a sanitary latrine.
- (11) Do not spit anywhere and everywhere. If you must cough, use a handkerchief to cover your nose and mouth.
- (12) All children should be given complete vaccination after birth in order to protect them from many diseases. Immunity and immunization schedule has been already discussed in lesson 7. Read them again.



Fig 8.2: Some Preventive measures

## 8.4 LIFE STYLE DISEASES OR NON-COMMUNICABLE DISEASES

Some diseases do not get spread from one person to another through touch, air, food, water or sexual contacts. These diseases may develop in a person due to faulty eating and living habits e.g., obesity, diabetes and hypertension. These diseases are called **life style diseases**.



Notes

Rohit's mother is a 50 years old diabetic woman. She is quite fat and fond of fried foods and sweets. She depends on her maid for all household work. She does not like to exercise. One day, she felt pain in the chest for which she was immediately taken to the hospital. The doctors diagnosed her with heart problem. Her condition was complicated. She had to be hospitalized for one month for proper treatment and care. It was a large economic burden for the family and also left the family members emotionally and mentally drained.

These days we hear less about infectious diseases like typhoid or cholera. On the other hand, very often we hear about diseases like diabetes, hypertension (high blood pressure), obesity and heart disease. Have you wondered what causes these diseases? There is no infection in the body, yet these diseases occur. This happens because of the defective lifestyle that we follow.

What is a lifestyle? A lifestyle is the pattern of living that we follow - how we work, what and when we eat, how and when we sleep, how much physical activity we do and whether we smoke or consume alcohol. Lifestyle or non-communicable diseases are chronic (long term) in nature and do not result from an acute (short term) infection nor do they spread from one person to the other. These conditions cause dysfunctioning in the body and impair the quality of life. They may also lead to death. These diseases usually develop relatively over long periods. In the beginning there may not be any symptoms but after the disease sets in there may be a long period of impaired health.

Lifestyle diseases are now seen in developing countries like India and in the younger or productive age group. This leads to reduction in productivity and development of the country. As these are chronic conditions they are a financial burden for lifetime. Therefore, there is an increasing concern these days about lifestyle diseases that can be easily prevented but not cured.

The lifestyle factors associated with these diseases can be of two types-

- i) Modifiable (those that can be changed) like food habits, physical activity level, addiction (smoking, drinking) and stress.
- ii) Non-modifiable (those that cannot be changed) like age and heredity.

You may have observed that

- i) More and more young people are seen smoking and drinking despite knowing the fact that these are harmful to health.
- ii) Our nutritious and balanced meals are giving way to fast food and junk food, fresh fruits and vegetables are being rejected in favour of processed and packed food and soft drinks are replacing milk.
- iii) We prefer to use a bus or car instead of walking even for short distances.



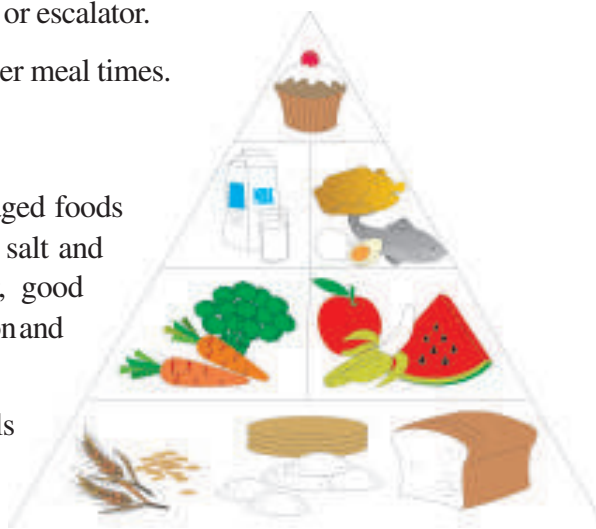
- iv) More and more machines are being developed each day to reduce physical labour associated with our work.

All the above practices have led to our becoming overweight and obese. Obesity is excess body-weight than normal or ideal weight for your height. Obesity is the main underlying causes for other lifestyle diseases like diabetes, hypertension, obesity, heart disease, etc.

### 8.4.1 Prevention of life style diseases

People need to change their habits in the direction of healthier living. You can do a lot to prevent the occurrence of lifestyle diseases. Some healthy tips are:-

- i) take up regular exercise like walking, yoga, dancing, aerobics and cycling.
- ii) use stair-case instead of lift or escalator.
- iii) take a balanced diet at proper meal times.  
Do not over-eat.
- iv) avoid processed and packaged foods that are rich in sugar, fats, salt and calories and low in fiber, good quality protein, minerals (iron and calcium) and vitamins.
- v) eat whole grains like cereals (wheat, whole wheat flour), millets (jowar, bajra) and avoid refined foods like maida.
- vi) eat 400 - 500 gms of seasonal fruits and vegetables in a day.
- vii) drink plenty of water.
- viii) practice yoga or meditation to avoid stress in life.
- ix) keep away from smoking and drinking alcohol.
- x) spend less time in sitting and watching television and pursue outdoor games and activities like gardening, playing a sport like football, cricket and badminton.



**Fig 8.3: Food Pyramid**

You can educate people around you regarding healthy lifestyle practices. It is possible to keep these diseases under control, if you make sensible alteration in your lifestyle.

**ACTIVITY 8.1**

In your neighbourhood and family, identify people suffering from lifestyle diseases; the age at which it occurred; underlying causes (modifiable and non-modifiable) and discuss with them the appropriate lifestyle modification for a healthy life.

**INTEXT QUESTIONS 8.3**

1. Why is there an increase in the occurrence of non-communicable or lifestyle diseases in countries like India? Who are the victims of these diseases?
2. Suggest three healthy eating practices that can prevent lifestyle diseases.

**8.5 CARING FOR THE SICK AT HOME**

You now know the measures you can take in order to prevent the spread of communicable diseases. But if someone in the family falls ill, what things are there that you will keep in mind so that the patient recovers as fast as possible. Some of the points you should consider are-

- (1) consult the doctor immediately instead of waiting for the intensity of the disease to increase.
- (2) follow the doctor's advice. Whatever medicines are prescribed should be given on time.
- (3) give the patient a proper and balanced diet as advised by the doctor.
- (4) see that the patient takes adequate rest.
- (5) keep the patient's room clean. The patient's clothes should be changed everyday and he may be given a sponge bath, if possible.

Some of the common communicable diseases that can be managed at home are explained in the table:



Notes

# MODULE - 1

## Home Science in Daily Life



### Notes

## Communicable and Life Style Diseases

Name of Disease	Mode of Spread	Symptoms	Incubation period	Management of the Patient
1. Cholera	Food and Water	<ul style="list-style-type: none"><li>• Sudden onset of severe, watery diarrhea.</li><li>• The faeces look like rice water</li><li>• Vomiting</li><li>• Cramps in the legs</li><li>• Patient feels very thirsty</li></ul>	1-5 days	<ul style="list-style-type: none"><li>• Dehydration can be dangerous, so give plenty of fluids.</li><li>• Give Oral rehydration solution (ORS).</li><li>• Give boiled water and fresh, easily digestible food.</li></ul>
2. Typhoid	Food and Water	<ul style="list-style-type: none"><li>• Severe headache</li><li>• Fever with low pulse</li><li>• Dry white coated tongue</li></ul>	14-21 days	<ul style="list-style-type: none"><li>• Blood culture and other tests should be done.</li><li>• Give the prescribed medication to the patient.</li></ul>
3. Hepatitis (jaundice)	Food and Water	<ul style="list-style-type: none"><li>• Fever</li><li>• Dark yellow urine</li><li>• Yellowish tinge in eyes</li><li>• General paleness</li><li>• Loss of appetite</li><li>• Abdominal discomfort</li></ul>	20-35 days	<ul style="list-style-type: none"><li>• Give a carbohydrate-rich diet.</li><li>• Keep the patient in bed as long as there is fever and till appetite returns to normal.</li></ul>
4. Influenza (Flu)	Air	<ul style="list-style-type: none"><li>• Fever</li><li>• Cold, cough, sneezing</li><li>• Headache and body ache</li><li>• Nausea</li></ul>	1-3 days	<ul style="list-style-type: none"><li>• Control the fever with medicines and cough with steam inhalation.</li><li>• Treatment is likely to prolonged so constant monitoring by the doctor is essential.</li></ul>
5. Tuberculosis (T.B)	Air	<ul style="list-style-type: none"><li>• Persistent cough</li><li>• Loss of weight and appetite</li><li>• Excessive weakness</li><li>• Rapid pulse</li><li>• Chest pain</li><li>• Breath has peculiar odour</li></ul>	4-6 days	<ul style="list-style-type: none"><li>• Maintain hygienic conditions</li><li>• A balanced diet rich in calcium should be given</li><li>• Treatment should be strictly regulated for one year</li></ul>





Notes

6. Malaria	Mosquito bite	<ul style="list-style-type: none"> <li>• Fever</li> <li>• Alternating chill and perspiration</li> <li>• Headache and body ache</li> <li>• Nausea</li> <li>• Vomiting days</li> </ul>	10-14	<ul style="list-style-type: none"> <li>• Get the blood test done to confirm malaria.</li> <li>• Give prescribed medicines.</li> </ul>
7. Tetanus	Wound exposed to dust or rusted item	<ul style="list-style-type: none"> <li>• Restlessness</li> <li>• Headache</li> <li>• Fever</li> <li>• Stiff neck</li> <li>• Difficulty in chewing and swallowing</li> <li>• Spasm of muscles of jaw and face</li> <li>• Bending of back in shape of bow</li> <li>• Severe pain</li> </ul>	4 days to 2 weeks	<ul style="list-style-type: none"> <li>• Put a ball of cotton between teeth to prevent biting of tongue.</li> <li>• Maintain hygiene.</li> <li>• All wounds should be thoroughly washed.</li> </ul>
8. Pertussis (whooping cough)	Air	<ul style="list-style-type: none"> <li>• Inflammation of mucus membrane</li> <li>• Severe bouts of cough accompanied by whoop like sound</li> </ul>	7-12 days	<ul style="list-style-type: none"> <li>• Complete isolation of the patient for a week</li> <li>• Should be kept in well-ventilated room</li> </ul>

### Steps to prepare an Oral Rehydration Salts Drink (ORS)

- 1. Purchase ORS :** ORS packets are available in health centres or a chemist shop.
- 2. Put the contents of the ORS packet in a clean container**
- 3. Add water only.** Do not add ORS to milk, soup, fruit juice or any other liquid. **Do not add sugar**
- 4. Stir well.** In case of infants, feed the solution from a clean cup with the help of a spoon. Do not use a bottle.

If you are unable to get an ORS, then,

- 1. Add 8 teaspoons of sugar and 1 teaspoon of salt to 1 liter of clean drinking water.**
2. Allow the sugar and salt to dissolve.
3. Stir well



Notes



**INTEXT QUESTIONS 8.1**

1. What is a 'Disease'?  
 .....  
 .....
2. Fill in the blanks with appropriate word/words.
  - a. Diseases spread through infected food and water are..... and.....(typhoid and hepatitis/typhoid and dengue)
  - b. Malaria is spread through ..... (fly/ mosquito bite/ insects)
  - c. If a patient suffers from dehydration he/she should be given plenty of..... ( fruits/ vegetables/ fluid and ORS )
  - d. A person suffering from tuberculosis should ..... while coughing or sneezing. (cover his/her mouth/isolate himself/herself)
3. Write two symptoms of the following diseases.
  - a. Influenza
  - b. Tetanus
  - c. Hepatitis
  - d. Cholera
4. Mohan had consumed infected food but is not showing any signs of the disease. Can he make his friend Abdul ill? How?

**8.3 HIV/AIDS**

Most of you must have heard of HIV. HIV stands for Human Immuno Deficiency Virus. It is caused by a virus that attacks the body's natural defense system. Do you remember what the body's defense system does? Yes, it defends the body against many infections. Can you guess what will happen if there is no defense system in the body? The germs will attack the body and the person's immunity is reduced. This makes him/her prone to catch many diseases. A person infected with HIV virus can transmit the disease to other people. When HIV virus has completely destroyed the person's defense system- AIDS sets in. AIDS stands for Acquired Immuno Deficiency Syndrome. HIV/AIDS is a highly communicable disease that is highly debilitating. It affects a person's productivity and has no cure. Therefore in order to protect ourselves we must know how this disease spreads.

The HIV/AIDS virus is spread by

- (i) sexual contact with an infected person.
- (ii) exchange of infected body fluids, e.g., blood transfusions.
- (iii) use of infected needles
- (iv) from infected mother to child during pregnancy or at birth.



Notes



**Fig 8.4: Ways of transmission of HIV/AIDS**

You must have seen roadside posters and banners and advertisements on television explaining how HIV/AIDS does not spread. Can you recall messages about how HIV/AIDS does not spread? HIV/AIDS cannot spread by:

- shaking hands
- kissing on the cheeks
- using the same toilet seat
- standing close to the infected person
- through the air, that is, sneezing, coughing, etc.
- through cups, glasses, plates
- Water or food

There is no cure for HIV/AIDS as yet, nor is there any vaccine to protect people. However, some preventive measures that can be taken are:

restrict the number of sex partners to one

- Use protection during sexual contact



### Notes

- Always use only properly sterilized needles for injections
- Insist on getting properly tested blood from registered blood banks when in need of blood transfusion
- Seek medical advice for bearing a child if infected with HIV.

It is important to understand that HIV infection and AIDS are related terms but not the same. HIV infected person may not be suffering from AIDS i.e. an HIV infected person if takes nutritious diet and maintains healthy life style can deter the onset of AIDS and can lead a productive life for a number of years.



### INTEXT QUESTIONS 8.2

1. The full form of AIDS is.....
2. Choose the correct alternative:
  - (i) AIDS is spread by
    - a) shaking hands
    - b) playing together
    - c) infected needles
    - d) water or food
  - (ii) AIDS cannot be spread by
    - a) Sneezing
    - b) Blood transfusion
    - c) Sexual contact
    - d) Infected needles



### TERMINAL EXERCISE

1. Differentiate between communicable and non-communicable or life style diseases?
2. Shazia went to a fair and had food that was exposed to flies and dust. The next day she had vomiting, diarrhoea and cramps in her legs. What do these symptoms indicate? What steps will you take to manage the patient?
3. Life style diseases impose financial burden and slow down progress of the nation. Why?

4. Write a slogans for each of the following –
  - a. Importance of safe drinking water
  - b. Promotion of physical activity



### ANSWER TO INTEXT QUESTIONS

#### 8.1

2.
  - a. Typhoid, Hepatitis
  - b. mosquito
  - c. Plenty of fluids and oral rehydration solution
  - d. Cover his mouth
3.
  - a. Fever, headache and body ache
  - b. Fever and dry coated tongue
  - c. Yellow eyes and dark yellow urine
  - d. Watery diarrhea and cramps in the legs

#### 8.2

1. Acquired Immuno Deficiency Syndrome
2.
  - i. c
  - ii a



Notes



## CARE AND MAINTENANCE OF FABRICS

A group of students were chatting during lunch break. Charles complimented Joseph for his favourite sparkling white shirt that they had brought together almost two years ago. Just then Purnima said that she was very unhappy about the condition of her silk blouse after one washing. Akbar said he too could not wear his expensive pure wool cardigan after the first wash. Then Kabir told them that he has acquired knowledge regarding care of different types of fabrics in a house keeping course. He told them that they should not wash all types of fabrics with one detergent. He further added that there are different methods of washing and finishing different types of clothes. He advised that a little care can keep their favourite dress as good as new.

Do you know that clothes speak volumes about the wearer's personality? It is good to select clothes carefully. But even more important is to wash and finish them regularly for a well groomed appearance. Let us learn how to take care of clothes so that we have no regrets later.



### OBJECTIVES

After reading this lesson you will be able to do the following:

- explain the meaning and need of brushing, airing and laundering your clothes;
- remove stains using appropriate reagents and techniques;
- check care labels and colour fastness of your clothes before washing;
- launder different fabrics using appropriate cleaning methods and finishing agents and;
- store laundered clothes suitably.

## 9.1 ROLE OF SHAKING, BRUSHING, AIRING AND LAUNDERING CLOTHES IN CARE AND MAINTENANCE OF FABRICS

We all know that when we wear clothes they become dirty and need laundering. The dirt is due to stains, dust, grease and perspiration. When left on fabrics, these can lead to the following damages:

- Stains and dirt on clothes become medium for the growth of bacteria, fungus or other harmful organisms which may lead to skin problems and poor personal hygiene.
- Dirty clothes lose their freshness and smell unpleasant.
- Left on clothes the dirt and stains reduce the strength of the fabric.
- No one feels good wearing stained and dirty clothes.

Clothes need not be washed every time they are worn. It depends on the weather in which these have been worn and how much sweat they have absorbed. When the weather is good and you do not sweat, you can safely reuse your clothes. But before putting them away for reuse keep the following steps in mind to maintain your clothes.

### 9.1.1 Shaking, Brushing and Airing

‘**Shaking**’ helps in removing loose dust from the fabric. Hold the dress with both hands and shake it vigorously.

Have you seen materials like velvets, corduroy, chenille, blankets and carpets? They are thick and have a pile on their surface which holds dust easily. To remove it we need to gently brush the surface with a soft clothes-brush, in the direction of pile (fuzzy surface).



Fig. 9.1 Brushing

Thus **brushing** is for removing loose dirt from fabrics which have a pile on them suits and coats are also brushed.

‘**Airing**’ helps in drying and removing bad odours from fabrics. It is done preferably outdoors in the sun or in a well-ventilated room.

### 9.1.2 Laundering

Laundering of clothes does not mean only washing of clothes. It consists of the following three steps:

- Washing or dry-cleaning garments to remove dirt, perspiration and smell, e.g. your school uniform is washed and your woolen coats and jackets etc. are dry cleaned.



Notes



Notes

- ii. Finishing the garments with stiffening agents like starch and gum, brightening or bleaching agents, drying them then ironing or pressing, folding and hanging garments, e.g. cotton dupattas and sarees are starched.
- iii. Storing the garments for a short or long time, e.g. when the winter season arrives you put away summer clothes and take out woolen shawls, sweaters, coats etc.

**Remember,** washing and dry cleaning are two different processes used for cleaning different types of clothes.

Washing	Dry-cleaning
Means removing dirt using soap/ detergent and water.	Means removing dirt using grease absorbents and solvents.
Colourfast fabrics can be easily washed.	Leather and fur, selected silks and woolens, zari and other costly fabrics are dry cleaned.



**INTEXT QUESTIONS 9.1**

1. Meena has a basket full of soiled clothes. These include her silk blouse, zari saree, cotton shirt, cotton payjama and woolen shawl. Which of these would you recommend her to wash at home and which clothes should she send for dry cleaning? Why?

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2. Summer season has set; you have to put away the winter clothes. What steps would you suggest to your friend to ensure that his clothes are clean and ready to store till the next season?

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**9.2 GETTING READY TO LAUNDRY CLOTHES AT HOME**

Whenever you are ready to launder clothes at home remember that there are certain preparations required. What are these? Why are these preparations necessary? How and what we need to do, let us find out.





Notes

### 9.2.1 Collection of clothes and supplies:

If you have a set place to keep your dirty clothes and supplies for washing, then this step is already taken care of. If not then collect all the dirty clothes and supplies needed for washing, at one place. It helps to conserve energy while washing. Can you explain how?

### 9.2.2 Mending damaged garments

The old saying- ‘a stitch in time saves nine’ stands true in this case. If any garment has been damaged, its handling during washing may make the yarns come out from its torn areas and make the tear larger. It may become very difficult or impossible to mend them neatly. That is why it is advisable to mend (repair) all tears before the garments are washed.



Fig. 9.2 Mending

### 9.2.3 Sorting

It refers to separating the clothes on the basis of (i) the type of fabric (ii) colour (iii) size and weight (iv) amount of dirt (v) utility of the article (vi) soaking time (vii) amount of detergent and bleach required as these are all different for different fabrics.

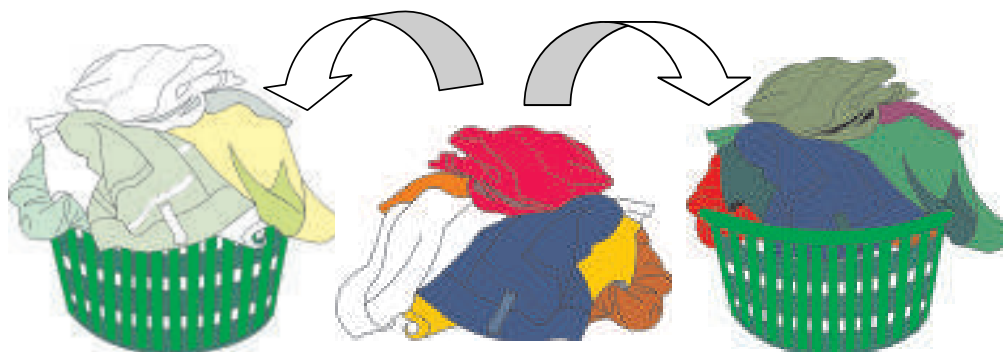


Fig. 9.3 Sorting

If you ignore this sorting, white fabrics may acquire colour stains if the colour of any other garment bleeds. For maintaining good hygiene dusters, kitchen towels and dish clothes, under garments, socks, need to be washed separately.



Notes

### 9.2.4 Read labels on the garments

Generally, all textiles and textile products carry labels which provide basic information about the product, for example, the contents of the product, its washing and ironing instructions, etc. These instructions are stamped at the beginning and end of the fabric roll or along its selvages. Reading these thoroughly will help you take better care of your fabrics. Following are some of the stitched and stamped labels on garments.



Fig. 9.4 Hanging and sewn tags on readymade garments



#### ACTIVITY 9.1

Collect and study 3-4 labels on textile items and fill the following table:

<i>Item on which found</i>	<i>Information contained</i>	<i>Meaning</i>
Cardigan		Information about -contents -washing and drying

## 9.3 CHECK STAINS AND REMOVE THEM



Fig. 9.5 some common stains

Ink, lipstick, nail polish, grease, paint tea and coffee, are some marks that may spoil our clothes at one time or the other. A **stain** is an unwanted mark of discolouration on a fabric caused due to contact with another substance. Generally, a stain requires special treatment for removal. If you have ever accidentally spilled tea on your clothes and washed it off immediately you must have realized that the stain gets removed quickly. Old stains take long and also a lot of effort to remove, often with poor results. Hence, the best way to get rid of stains is to remove them as soon as possible. Do not allow these to penetrate deep into the fabric or get dry and set.

**Remember** stains must be removed before washing as some of them may become permanent when exposed to chemicals in soaps or detergents, hot water and ironing.

Different types of stains require specific stain removing techniques and agents, depending on the type of fabric. Use of incorrect stain removing agent can spoil the fabric or its colour. Hence always try to identify the stain and select appropriate techniques and stain removing agent.

Most of the stains can be identified by their colour, smell and feel. Let's find out more about them.

- Colour:** Every stain has a specific colour. For example, the colour of curry/pickle stain is yellow, a coffee/tea stain is brown, a grass stain is green and so on. Try and collect some more stains with colours.
- Smell:** Most stains have a peculiar smell. Recall the smell of egg or paint or shoe polish. The stain on a fabric will have the same smell.
- Feel:** Stains can also change the feel of the fabric and can thus be recognized on this basis. Have you ever observed that paint or sugar make the fabric hard and stiff to touch, whereas lipstick or shoe-polish make the fabric feel slippery.



## ACTIVITYS 9.2

Take an old white cotton cloth and cut out 4 (5x5 cm) pieces. Stain each piece with a different stain and keep it to dry. Now observe the colour, feel and smell of each stain. Stick each stain on a big paper and write its description.



Notes



Notes



**INTEXT QUESTIONS 9.2**

1. State whether the following statements are true or false and justify with reasoning-

Statement	True/False	Justification
(a) Dirty clothes are harmful for personal hygiene		
(b) 'Laundering' is same as 'washing' clothes		
(c) Airing of clothes is useful when they are not to be washed immediately.		
(d) Stains should be removed from the fabrics before washing.		

**9.3.1 Classification of stains**

Stains can be grouped on the basis of their origin, e.g., tea and coffee and many oils, vanaspati and ghee come from vegetable source. While removing these stains you can use more or less the same removing agents and method. Let us classify all stains on the basis of their origin.

Category of stain	Stains
1. Vegetable stains	Tea, coffee, fruit
2. Grease stains	Butter, ghee, oil, curry, shoe polish, tar, oil paints
3. Animal stains	Blood, milk, egg
4. Mineral stains	Rust
5. Miscellaneous stains	Dye, ink, mildew, grass, perspiration

**9.3.2 Techniques of stain removal**

There are two methods of stain removal: (i) Sponging and (ii) Dipping. Let us learn how stains are removed by using these methods.

**Sponging**

- Place an absorbent paper or fabric under the stain so that the right side of the stain faces the absorbing surface. Sponging should always be done on the wrong side of the stain.



Fig. 9.6 Sponging  
HOME SCIENCE

- Take a soft cloth, dip it in the stain-remover and gently rub the stain starting from its outer corner moving inwards, towards the centre.
- Use light, circular strokes as these prevent the stain from spreading.
- The absorbent paper or fabric (commonly known as blotter) must be changed as soon as it starts showing the stain.



Notes

### Dipping

Dipping is the method in which the entire fabric can be immersed in the stain removing agent. It is suitable if there are many stains or a large stain on the fabric. We can choose the stain removing re-agent depending upon the type of stain.



Fig. 9.7 Dipping

Some of the common reagents used for stain removal are borax powder, ammonia, hydrogen peroxide, oxalic acid and ready to use bleaches.

Type of stains and method of removal		
<b>1. Vegetable stains</b>	Tea, coffee, fruit, etc.	
<b>Consideration for removal</b>	Use alkaline reagents such as borax powder to remove stains as these are acidic in nature.	
<b>Stains</b>	<b>White Cottons</b>	<b>Coloured Cotton</b>
<i>Fresh</i> tea/coffee, chocolate, fruit	Pour boiling water on the stain  <i>Old</i> Dip the stained portion in glycerin. Or spread borax powder over stain and pour boiling water while holding the stained portion on the mouth of a mug or pan.	Soak in warm water and borax (2 cups of water + ½ teaspoon of borax)  Same as for white cottons

# MODULE - 1

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Notes

<b>henna (Menhdi)</b>	<b>fresh</b> dip in warm milk for half an hour	same as for white cotton
	<b>old</b> repeat the above two or three times	same as for white cotton

<b>2. Animal stains</b>	blood, milk, egg, etc.	
<b>Consideration for removal</b>	Avoid heat as these stains contain protein which gets fixed on heat treatment.	
<b>Stains</b>	<b>white cottons</b>	<b>coloured cotton</b>
blood, egg, meat	<b>fresh</b> Wash with cold water and soap	same as for white cottons
	<b>old</b> soak in salt water (2 table spoons of salt + ½ bucket of water), or in diluted ammonia	same as for white cottons

<b>3. Grease stains</b>	Butter, ghee, oil, curry, shoe polish, tar, oil paints, etc.	
<b>Consideration for removal</b>	Use grease absorbents and solvents like chalk, talcum powder to remove greasy matter and then, remove the colouring matter.	
<b>Stains</b>	<b>White Cottons</b>	<b>Coloured Cotton</b>
butter, ghee, oil, curry	<b>fresh</b> wash with hot water, and soap. Dry on grass or shrub/plant in the sunlight	same as for white cottons, but leave it in shade
	<b>old</b> Make a paste of soap and water and apply it on the stain. Leave it wet in the sunlight until it is removed	same as for white cottons but leave in shade



Notes

paint, shoe polish, nail polish, lipstick, ball pen	<b>fresh</b> Scrape all the excess stain (a) Sponge gently with methylated spirit or kerosene (b) Sponge with turpentine	same as for white cottons
	<b>old</b> Repeat the above method two or three times	same as for white cottons

<b>4. Mineral stains</b>	Rust and some medicines	
<b>Consideration for removal</b>	These stains contain metallic compounds and therefore, require treatment with mild acidic reagents followed by alkaline solutions to neutralise.	
<b>Stains</b>	<b>white Cottons</b>	<b>coloured cotton</b>
iron rust	<b>fresh</b> rub lime juice and salt	same as for white cotton
	<b>Old</b> apply dilute oxalic acid and neutralize with dilute borax solution	same as for white cotton

<b>5. Miscellaneous stains</b>	dye, ink, mildew, grass, perspiration, etc.	
<b>Consideration for removal</b>	Give specific treatment to each of these stains.	
<b>Stains</b>	<b>white cottons</b>	<b>coloured cotton</b>
grass	<b>fresh</b> Wash with soap and water	same as for white cotton
	<b>old</b> Sponge the stained portion with methylated spirit	same as for white same as for white



Notes

betal leaf ( <i>paan</i> )	<b><i>fresh</i></b> apply a paste of onions and leave in the sunlight	same as for white cottons but leave in shade
	<b><i>Old</i></b> repeat above method two or three times	same as for white cotton
ink	<b><i>Fresh</i></b> wash with soap and cold water	same as for white cotton
	<b><i>Old</i></b> (a) soak in sour butter milk (lassi) for half an hour  (b) apply lime juice and salt and leave in the sun  (c) bleach the stain	same as for white cotton except do not leave in sun, put it in shade

### 9.3.3 Precautions while removing stains

- As far as possible, remove the stain when it is still fresh.
- For delicate and/or coloured fabrics, first try out the chemical on a small portion of the fabric on the inner side of the seam or some portion of the garment which is not visible when worn. In case the fabric or its colour gets damaged, do not use the chemical.
- Use dilute and mild reagents as these are less harmful, though it may take a little longer to remove the stain.
- Rinse the fabric several times after the removal of the stain, or the reagent may damage the fabric on drying.



#### ACTIVITY 9.3

Shyna wore a very beautiful white silk suit for an interview. She was very cautious about protecting it all through. After the interview she came home and changed her clothes. While she was folding her suit she noticed a big curry stain on it. She was very



tired hence she did not do anything about it. Next morning she dusted talcum powder on the stain and left it for a little while. Then, she soaked the suit in a strong hot detergent solution for an hour. She hung the suit on the line until it dried. The stain was still there though a little less prominent. She treated the stained portion with hydrogen peroxide. The stain had disappeared. She rinsed the suit many times to remove all traces of the chemical and then dried it in shade.



List each step that Shyna followed to handle the stain and comment if it was correct or incorrect. Give reason for your answer.

S.No.	Steps	Correct	Wrong	Reason
1				
2				
3				



### INTEXT QUESTIONS 9.3

1. For removing each of the following stains, tick ( $\checkmark$ ) the most appropriate option:

(i) **Old tea stain on white cotton fabric:**

- (a) Use salt water
- (b) Soak in glycerin
- (c) Soak in lime juice
- (d) Pour boiling water over borax

(ii) **Old blood stains on coloured cotton fabric:**

- (a) Soak in salt water
- (b) Soak in glycerin
- (c) Soak in hot water
- (d) Wash with soap and hot water

(iii) **Lipstick stain:**

- (a) Use of salt water
- (b) Soak in ammonia
- (c) Sponge with methylated spirit
- (d) Wash with hot water and soap



Notes



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**(iv) Rust stain:**

- (a) Use of salt water
- (b) Use lime juice and salt
- (c) Soak in methylated spirit
- (d) Wash with soap and cold water

**(v) Nail polish stain on polyester fabric:**

- (a) Sponge with methylated spirit
- (b) Soak in warm borax water
- (c) Rub lime juice and salt
- (d) Soak in warm water and soap

After removing stains, the next step is laundering. General laundering is dealt with here while specific washing of different fabrics has been dealt with later in the lesson.

**9.4 LAUNDERING**

Laundering of clothes involves the following steps:

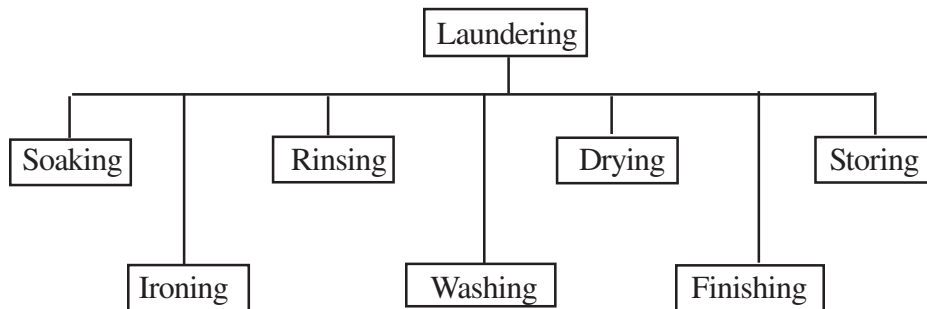


Fig. 9.8 Process of Laundering

**9.4.1 Soaking**

Soaking of fabric in water loosens the non-greasy dust particles because of up and down movement of water molecules. Fabrics which become weak when wet must not be soaked for long. Do not soak too many clothes in one bucket. There must be a room for dirt to disentangle from the fabric. Fabrics must not be soaked for longer than half an hour otherwise loosened dust will resettle on the fabrics.

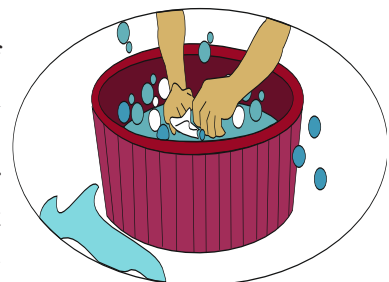


Fig. 9.9 Soaking

### 9.4.2 Washing

As said earlier, soaked clothes must be washed soon. The process of washing involves removal of dirt that has been loosened from fabrics by soaking. There are many ways to do this and the choice depends on the fabric being washed. You will now learn about these methods and their suitability to various types of fabrics.

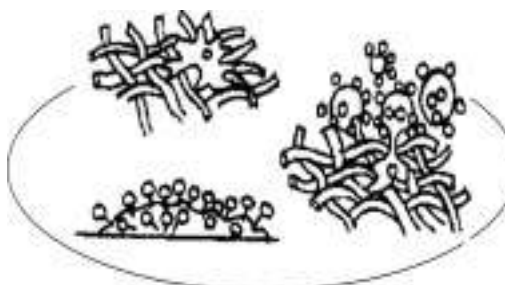


Fig. 9.10 Removal of Dirt by

### Methods of Washing

i. **Friction method:** For washing strong fabrics like cotton and linen this is the right method. You can apply friction in any of the following three ways.

- **Hand friction:** This is the most common method of washing clothes. Rub dirty areas vigorously with the hand till the dirt is removed. It is suitable for cleaning very soiled small sized areas in the garment like cuffs, collar and bottom of the lower garments, handkerchief and lace.

- **Scrubbing brush:** While cleaning kitchen dusters which are very soiled use a brush to remove dirt, grease and stains. Remember to place the fabric on a flat hard surface before scrubbing. Hard scrubbing can clean the fabric well but wears it out. Have you noticed



Fig. 9.11 Scrubbing

that if you use brush on shirt collars they get worn out? Therefore, scrubbing has to be used as per the nature of the fabric.

- **Beating stick:** While washing large clothes like bed sheets and towels use a wooden beating stick to provide friction. Remember that this is done only on a clean, flat and hard surface. Spread the fabric on the floor, apply soap and then beat it with the stick, constantly changing the surface of the fabric with the other hand.

ii. **Washing by kneading and squeezing:** This method is for delicate fabrics like silk, wool, rayon, etc. This does not damage the fabric or change its shape because only gentle pressure is applied repeatedly with hands. While it is still in the soapy solution. While using this method dip the cloth in soap solution, take it out and squeeze



Fig. 9.12 Kneading and Squeezing



Notes



Notes

gently and again dip in the soap. In between rub the dirty areas gently between two hands. Repeat till clean.

**iii. Washing in machines:** ‘Washing machine’ a labour saving device and provides all the friction required for cleaning the clothes. The washing time varies with the type of fabrics and amount of soiling. For example, wool fabrics take less time for cleaning than cottons. Washing machines available in the market are automatic, semi-automatic and non-automatic. The advantage of using automatic washing machine is that it has a spinner which can wring the clothes after washing to the extent that these are almost dry. This is especially useful while washing large and heavy articles like bedcovers, curtains, etc. The instructions about using the machine should be read carefully before using it. One should be careful while loading clothes for washing in a machine as the colour of some fabrics may bleed and spoil the other clothes in the machine.



Fig. 9.13 Washing machine

### 9.4.3 Rinsing

Washed fabrics must be rinsed at least thrice or till they leave behind clear water. Why do we need to do that? If not rinsed well the contents of leftover detergent would harm the fabric.



Fig. 9.14 Rinsing

### 9.4.4 Finishing Agents

Some of your clothes require the application of a finishing agent before they are spread for drying. A finishing agent is nothing but something which helps to brighten and/or stiffen the fabric and give it a brighter and fresher look. You know what starch and/or blue your white cotton clothes need. Both these are finishing agents for cottons. For silks, a different starch is used. It is called ‘gum arabic’. Similarly, there are ‘blues’ and brightening agents to brighten your white clothes. You will know more about these in the chapter on fabric finishes.

### 9.4.5 Drying

Clothes should preferably be dried outside in fresh air and sun. Use a clothes line and pegs or clips to hold the clothes or a clean stain free metal rack. Hang or spread the clothes and place the rack in the sun or shade depending on the type of clothes you have washed. Remember to



Fig. 9.15 Drying

turn clothes inside out if they are coloured. If you are using a clothes line, see that you spread your clothes on it in such a way that it allows air to pass through them. Not only do the clothes dry up much faster this way, it is an environment friendly method. Sunlight also kills some germs. Hence, it is recommended that under garments and the clothes used as sanitary napkins must be sun dried.

### 9.4.6 Ironing or steam pressing and folding

This process is applied on clothes to give them a smooth look. An electric or coal iron is used to carry out this job. There are various types of electric irons available in the market. Those with metal heating surface, Teflon (non-stick coated surface or steam irons) You can buy any of them and learn to use them from the instructions given along in the package.



Fig. 9. 16 Ironing

### 9.4.7 Storing

Remember that clothes are stored back in a cupboard or box only after they are completely dry. Since you need to dampen the clothes for ironing, spread the clothes again in fresh air after ironing till they are completely dry. Put them back in the cupboard or box for final storage.

Moist clothes should not be stored because they will allow fungus and bacteria to grow on them.



### ACTIVITY 9.4

One winter evening, Venkat wore a beautiful khadi kurta and went to a party. He enjoyed the party thoroughly. On the way back home it started raining suddenly and his kurta got damp. Since that was his favourite kurta, he immediately took it off, folded it and kept in the cupboard. When he took it out a few days later, he was shocked to see stains and a white powdery substance on the kurta. Besides, it smelt awful. Venkat was upset because he knew that his favourite kurta was totally spoilt.

**Discuss the problem with your friends or other learners during the personal contact programme and answer the following questions:**

1. What do you think, went wrong with Venkat's kurta?
2. If you were in his situation, what would you have done to save your khadi kurta?



Notes



## Notes

## 9.5 LAUNDERING OF SPECIFIC FABRICS

You have learnt the basics of laundering clothes. Is this information sufficient to launder all types of clothes you use at home? Let us now use this knowledge for laundering dirty clothes at home and see what more we need to know.

Collect all the dirty clothes in your house and see what you have. Do you remember the pre-preparation you need to do before washing and finishing these clothes? Let us see. Here is a pile of dirty clothes. What is your first step? Yes you are right it is **sorting** out the clothes. So you make the following piles after sorting:

- i) Cottons clothes consisting of white inner garments, payjama, salwar, petticoat, shirts, dusters from kitchen, bedsheets, pillow slips, and so on.
- ii) Coloured cottons like saree, blouse, salwar suits and dupattas.
- iii) Synthetics consisting of shirts, saree, blouse, dupatta and socks, etc.
- iv) Silk saree, blouse, shirt, etc.
- v) Woolen sweater, muffler and a shawl.

Separate very dirty clothes from less dirty ones, see if there are any repairs to be done and then see if there are any stains to be removed. If there is a care label attached, read it because it will tell you about the “do’s” and “don’ts” while washing the item. You are now ready for the next step. Let us handle each pile you have separated, one by one.

### Laundering of cottons

- i) **Soaking:** How and why will you soak your cotton items? Only white cottons are soaked to loosen the dirt settled or stuck to the fabric. They are soaked preferably in warm or hot water for half an hour depending on how dirty they are. Soak very dirty clothes separately. Yes, for two reasons, one because these are soaked for longer duration and in hot water and soap/detergent. Secondly, the loosened dirt from very dirty clothes will settle on the less dirty ones and make them dirtier. It is much easier to clean soaked fabrics. Do not put too many clothes together. Do you know why?
- ii) **Washing:** Dip all white clothes in soap/detergent solution. Apply extra soap on the heavily soiled areas and rub. Wash the light weight and lightly soiled cotton fabrics by using knead and squeeze method and big and heavy clothes using a stick. Rub areas which are very dirty with hands or with a brush. Do you remember why?
- iii) **Rinsing:** Why should we rinse clothes after washing? You have already learnt about it earlier in the lesson. If you do not remember go back and refer to it.

Cottons require application of a **whitening agent** in the last rinse. Why? What could you use for whitening? Yes you are right. You use blue which is available

as powder or liquid. These days you get chemicals like optical brighteners in the market. These are colourless florescent dyes which turn pale fabrics white and make them look brighter temporarily.

- iv) **Starching:** Putting starch on the white clothes is another procedure which must be carried out before they are spread for drying. It is done to give cottons a smooth and shining fresh look. Also, starched articles do not get dirty that easily.

2 table spoons of starch mixed in 5 liters of water is sufficient for starching 4-5 clothes

You can prepare your own starch using arrowroot.

- Dissolve arrowroot in a little cold water to prepare a thick batter. Add boiling hot water to this batter stirring all the time till it changes colour to transparent. Your starch is ready.
- Now add some of this starch paste that you have made in a basin of water and mix well. The strength of starch depends on the thickness of fabric and stiffness required. To make the fabric very stiff, dilute the full strength starch with 2-3 times water. But add 4-6 times water to get reasonably good stiffness.
- Before starching a garment turn it inside out, open and dip it in water for even spread of starch in it. Wring out the excess water and then dip it in the starch solution.
- Squeeze the fabric well and hang it in the sun to dry.

**Note:**

- i) The amount of stiffness is a matter of personal preference. Generally, we starch table linens like mats, tray cloths and napkins, heavily and inner wear garments lightly.
- ii) Do not starch under garments and those garments which are close fitting like a blouse, as the starch it may cut into your skin and make you uncomfortable.
- iii) If the articles have to be starched as well as blued, do it together in one solution, by adding blue to the diluted starch and water solution.

**Remember:** If the article gets over blued, dip it in plain water with a few drops of white vinegar or lime juice. The extra blue will get removed.

- iv) **Drying:** After rinsing, starching and bluing the clothes are dried. Hang the clothes by their strongest part along the clothes line. Articles dried in the sun should be removed as soon as they dry. Over exposure to sunlight can weaken the fabric and cause yellowness.



Notes



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- v) **Ironing:** Cotton clothes are ironed best when they are evenly damp. But if they are starched they must dry completely before they are brought in. Sprinkle water evenly on them, roll them tightly and leave them for some time. Now open them one by one and iron with a hot iron. Leave them for some time to dry before storing.
- vi) **Storing:** Remember, fungus grows quickly on cotton fabrics. Hence, while storing cottons make sure that they are completely dry.

### Laundering of coloured cottons

- Do not soak cottons, especially when their colour bleeds.
- Use mild or neutral soap for washing.
- Wash using kneading and squeezing method.
- Rinse thoroughly and apply starch after turning clothes inside out in the last rinse.
- Dry in shade.
- Iron clothes after making them evenly damp.
- Store clothes when completely dry.



### INTEXT QUESTIONS 9.4

Fill in the blanks with the most appropriate word from those given in brackets:

- i. Soaking clothes for some time helps to \_\_\_\_\_ dirt. (loosen, fix, settle).
- ii. Starching is done to give cotton clothes a \_\_\_\_\_ look. (dull, crisp, shining).
- iii. \_\_\_\_\_ should not be starched. (table linen, saris, undergarments).
- iv. Coloured cotton articles should be dried in the \_\_\_\_\_ (sun, shade, daylight).
- v. Long exposure to sunlight makes fabrics \_\_\_\_\_ (bright, weak, dull).
- vi. \_\_\_\_\_ should be used to wash very dirty white articles (hot water, boiling water, luke-warm).
- vii. When cotton articles are stored moist, they develop \_\_\_\_\_ (dullness, brightness, mildew).
- viii. Fabric that is not properly rinsed becomes \_\_\_\_\_ (weak, yellow, bright).
- ix. Clothes must be \_\_\_\_\_ before washing. (blued, repaired, ironed).
- x. \_\_\_\_\_ articles should not be soaked before washing. (coloured, white, dirty).





Notes

## Laundering of Synthetics

Nylon, polyester and acrylic are synthetic fibers. Hence laundering synthetics is slightly different.

- Use luke-warm or cold water. Do not use hot water as synthetics will wrinkle very badly. Do you remember why? Yes, they soften and melt easily.
- Use any good soap, light pressure and light rubbing while washing.
- Rinse well in cold water to remove soap completely.
- To avoid wrinkles, do not squeeze tightly.
- Preferably dry on a hanger. It will help to maintain the original shape.
- When dry, if necessary, iron with a warm iron and not a hot one (Refer to ironing temperature chart given later in the lesson). Do you recall why?
- Store when completely dry.

**Remember:** While washing you can treat terrycot as synthetic fabrics.

## Laundering of silks

- Use luke-warm or cold water, a good neutral soap, light pressure and light rubbing while washing. There is no need to soak silks.
- Rinse well in cold water to remove soap completely.
- Apply starch (gum arabic) and dry in shade.
- Pick up the clothes when evenly damp and iron with a warm iron. Do can you remember why? Yes you are right, silk gets stained if water is sprinkled on dry clothes.
- Store preferably on hangers when completely dry.

## Laundering of Woolen Clothes

Woolens are more delicate than any of the fabrics used in the house. Wool has hairy surface which causes felting if handled roughly. Hence woolens need utmost care while washing.

Knitted woolen clothes lose shape when wet hence these need to be put back to shape after washing and need to be dried on a flat surface. Following steps should be followed for washing woolens:

- Take outline of the knitted dress on a paper before washing.
- Use mild alkaline soap/detergent dissolved in luke warm water all through.
- Use kneading and squeezing method to wash.



Notes

- Rinse thoroughly.
- Knitted items must be brought back into shape by putting them back on the paper draft taken earlier and dried on flat surface in shade.
- Steam press if necessary.
- Store them when completely dry in a dry place either on a hanger or on a flat surface and along with naphthalene balls or odonil tablets.

### 9.6 HANDY HINTS FOR IRONING

Prepare an ironing table. Cover it with an old blanket and then with a white cotton sheet. Keep the height of the table comfortable so that you need not bend or stretch while ironing. Usually, an 80 cm high table is very comfortable.

- Keep some water handy. Spraying water on cotton and linen produces good results.
- Sleeves, collars, laces, etc., should be ironed first.
- Iron laces, buttons, hooks, embroidered and embossed clothes from the wrong side. The embroidery will stand out and look more beautiful. It will also not break or melt due to high temperature.
- Iron the fabric along the length as the yarns are stronger in this direction.

**Important:** Follow ironing instructions on the **labels**, if any. Otherwise follow the ironing temperature chart given below.

Temperature		Fibre
Warm	150°C	Wool, silk, polyester and nylon
Hot	180°C	Cotton and rayon
Extra hot	200°C	Cotton and linen



### INTEXT QUESTIONS 9.5

1. Tick mark the statements that are true. Correct the false statements.
  - i. Neutral liquid soaps should be used for washing silks. True/False  
\_\_\_\_\_
  - ii. Cold water should be used while washing woolen articles. True/False  
\_\_\_\_\_



Notes

- iii. Wool articles should be soaked in water. True/False  
\_\_\_\_\_
- iv. Wool articles can be cleaned with any detergent solution. True/False  
\_\_\_\_\_
- v. Friction cannot be applied to clean woolen articles. True/False  
\_\_\_\_\_
- vi. Synthetics are squeezed well before drying True/False  
\_\_\_\_\_
- vii. Synthetics are ironed, if necessary, with a warm iron. True/False  
\_\_\_\_\_

## 1. Match the columns:

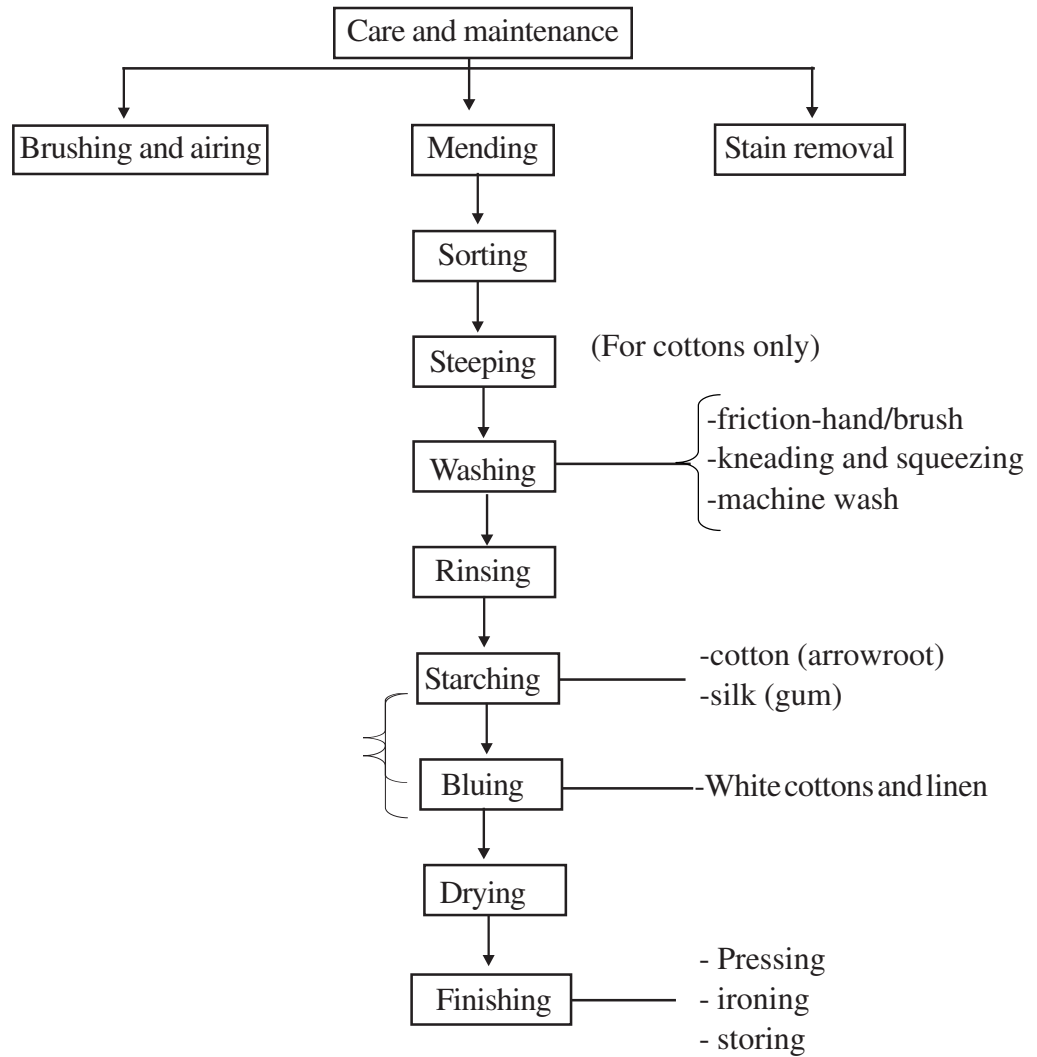
	Column A		Column B	Ans.
1	Wet silk or wool	a	Strength decreases	
2	Wet cotton	b	Neutral detergents	
3	Coloured cottons	c	Detergent powders/cake	
4	Silk	d	No effect on strength	
5	Wet viscose rayon	e	Strength increases	
6	White cotton	f	Liquid detergent	
		g	Alkaline detergent	



Notes



**WHAT YOU HAVE LEARNT**



**TERMINAL QUESTIONS**

1. Explain the meaning of the word 'laundering'.
2. What is a stain? How would you classify stains?
3. Describe the steps for removing the following stains from a cotton fabric. (i) Ghee (ii) Nail polish (iii) Red ink (iv) Grass (v) *Paan* (Betal leaf)
4. How will you wash a white cotton garment? Explain with reasons
5. How does the laundering of synthetics differ from laundering of cottons?



Notes

6. Shelly bought a white woolen cardigan. After wearing it twice she washed it together with other clothes in a washing machine. Predict the effect on the cardigan and the reasons for it.
7. Rehman wants to wash his brightly printed silk scarf at home. Tell him the correct procedure.



## ANSWER TO INTEXT QUESTIONS

- 9.1** 1. wash at home- cotton shirt, cotton payjama  
dry clean- silk blouse, zari saree, woolen shawl
2. Refer text
- 9.2** 1. (a) true, dirty clothes become medium for growth of bacteria or fungus  
(b) false, laundering consists of washing or dry cleaning, finishing and storing  
(c) true, airing helps in drying and removing bad odours.  
(d) true, stains may become permanent when exposed to chemicals in soaps or detergents
- 9.3** 1. (i) d (ii) a (iii) c (iv) b (v) d
- 9.4** (i) loosen (ii) shining (iii) under garments (iv) shade (v) weak (vi) hot water  
(vii) mildew (viii) yellow (ix) mended (x) coloured.
- 9.5** 1. (i) True (ii) False – Luke warm water should be used for washing woolen articles (iii) True (iv) False – woolen articles can be cleaned with mild alkaline detergent solution (v) True (vi) False – synthetics should not be squeezed and dried on a hanger. (vii) True

2.

	Column A		Column B	Ans.
1	Wet silk or wool	a	Strength decreases	2
2	Wet cotton	b	Neutral detergents	5
3	Coloured cottons	c	Detergent powders/cake	6
4	Silk	d	No effect on strength	3
5	Wet viscose rayon	e	Strength increases	1
6	White cotton	f	Liquid detergent	4
		g	Alkaline detergent	



# FIBRE TO FABRIC

You know that fibres are what fabrics are made of. Just look at the fabric of the dress you are wearing. It is made of the thread prepared from small fibres. Just pull out a thread from a piece of fabric and open it up by untwisting. You will see those small fibres. You do know that there are a large number of fibres available to us and from which a variety of fabrics are made. This is why in any cloth shop you find such a variety of fabrics on the shelves of cloth shops in the market.

In this lesson we want you to get all the knowledge and acquire skills needed to recognize the fabric you want to buy by associating it with its specific properties and assessing its suitability to specific uses. You are familiar with the variety of uses various fabrics have in our daily life. The study of fibres and fabrics gives us the complete knowledge of properties and uses of various fabrics available in the market. This knowledge will help us to choose wisely the fabric we require and make the best use of it after purchase.



## OBJECTIVES

After studying this lesson, you will be able to :

- discuss the functions of clothing and other household uses of fabrics;
- explain that the basic unit of a fabric is fibre which can be obtained from many sources;
- state typical characteristics of different fabrics;
- identify fibres and fabrics on the basis of visual examination and non technical tests;
- elaborate the process of yarn making and fabric construction;
- differentiate fabrics made from different yarns and tell their end uses;
- select fabrics for personal and household use.

## 10.1 FUNCTION OF CLOTHING AND HOUSEHOLD USES OF FABRICS

Why do we wear clothes? Our clothes are rightly recognized as “the second skin.” At every stage of life and in every ceremony, clothes play an important role. They cover our body and protect it from adverse climatic conditions.

Clothes enhance our personality. These are made from various kinds of materials and sewn in several forms called **dresses or garments**. A well-fitted dress, worn according to the occasion and time speaks a lot about the person’s habits, taste, social status, behaviour and many other traits. Generally, men, women and children dress up differently and they also have sets of dresses for different purposes and occasions, for example, dresses for formal, casual occasions, sports and nightwear.

Colour of our clothing, in our country, is decided according to season, climate, age, occasion, marital status, gender, community, happiness and sorrow. The religion and occupation of a person can also be judged by the clothes a person wears. Lastly and most importantly, clothes also tell us about the habits of the wearer and his / her approach to hygiene. If the clothes are dirty and crushed we tend to think the person is careless, shabby and poor. Crisp, freshly washed and well ironed clothes lend a well groomed appearance to the wearer.

You have just learnt about the functions of clothes. Two examples are given below. List three more functions of clothes.

i	To look smart.
ii.	To show individuality.
iii	
iv	
v	

### Other Uses of Fabrics

Think and write some of the other uses of fabrics in your house. Besides clothing, you are using fabrics in the house for bed linen, curtains, upholstery, cushion covers, etc. In the kitchen, you need dusters, mops, covers, etc. which are also produced from fibres. You use old cloth for dusting, wiping and covering, etc. So you see you have varied uses of fabrics in the house. Generally cotton fabric is suitable for most of the purposes. Once you learn about the properties of various fibres available, you will know why cotton is preferred to other fibres.



Notes



Notes

## 10.2 FIBRES AND THEIR SOURCES

We have talked about fibre as the basic unit of fabric. Do you know what a fibre looks like? To understand, this take a small amount of cotton and pull out the smallest part from it. Study carefully. These may be long or short strands with a smooth structure that looks like white hair. Actually, these are fibres. A single fibre of cotton is difficult to locate but can be easily recognized in a mass of cotton.

Now, consider the structure of wool fibres. You know these are hair of animals like sheep, goat, rabbit, camel etc. Sweaters, socks, gloves, scarves, shawls and coats etc., are made from these hair/fibres. You can check this by opening a thread pulled out from a pure woollen fabric, or knitting wool. What do you see?

Similarly, there are many other fibres available to us, which can be used to make cloth and we will learn about these in the next section. A fibre is a fine hair like strand and is the basic unit of textiles from which we make yarns and then the fabric.



### ACTIVITY 10.1

Take out some of your garments, pull out a yarn from the inner side of each and try to take out fibres. Study the similarities and differences among fibres in respect to their length and feeling.

The actual widthwise and lengthwise structure of fibres cannot be seen with naked eyes but can be recognized easily under the high power microscope. Here is the longitudinal (lengthwise) shape of some of the common fibres as visible under the high power microscope. Fig. 10.1 shows the longitudinal view of some fibres.

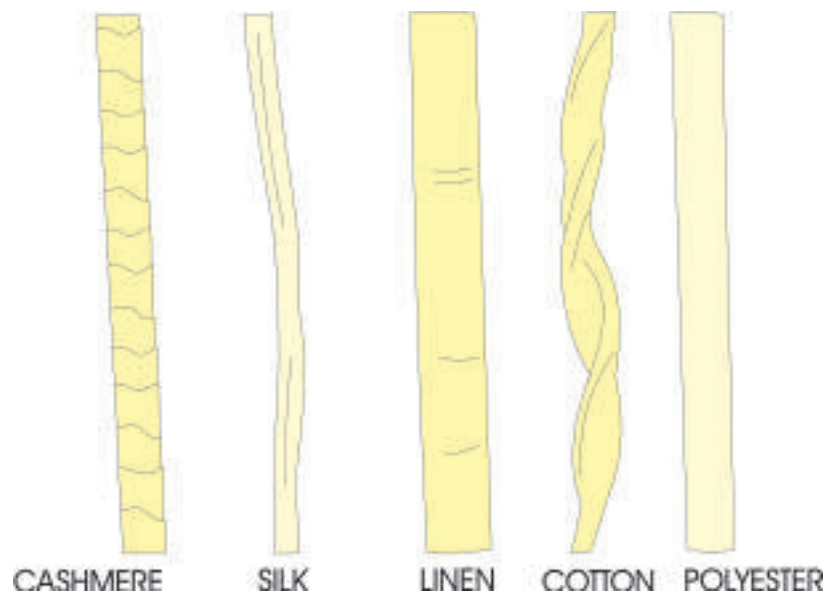


Fig. 10.1 The longitudinal view of cotton, wool, silk and polyester fibres.



### 10.2.1 Sources of Fibres and their Classification

There are many different sources from which we can obtain fibres and therefore, we classify them accordingly.

- i) **Fibres from Natural Sources:** All the fibres obtained from nature, i.e., plants or animals, are known as **natural fibres**. e.g. cotton, wool, linen, silk, etc. Fibres obtained from plant source are called **cellulosic fibre** e.g., cotton and linen. The fibres that come from **animal sources** are also known as **protein fibres**, e.g., wool and silk.

Sources of commonly used natural fibres are shown below in Fig. 10.2.

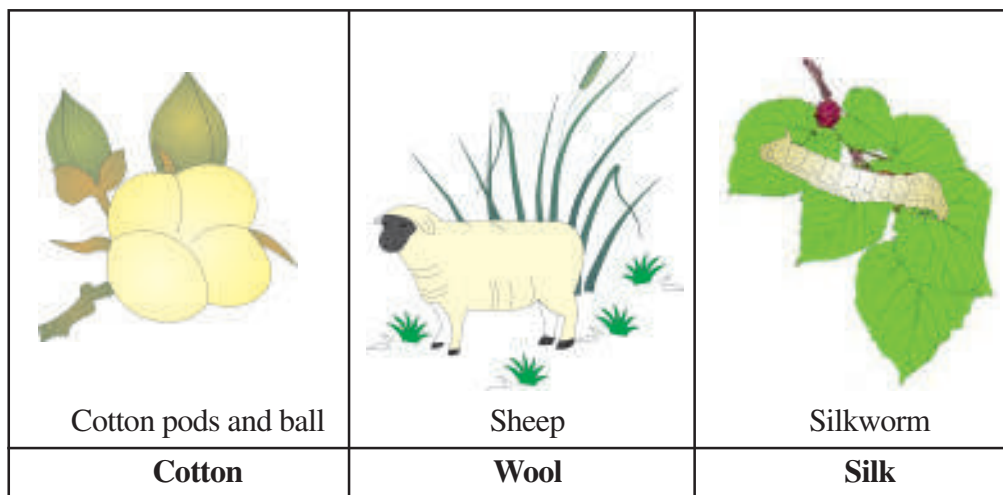


Fig. 10.2: Sources of natural fibres – Cotton, Wool and Silk

- ii) **Man-Made fibres:** The fibres which are made in laboratories using chemicals are known as man-made fibres and these are of following two types:
- Regenerated fibres** – These fibres are made from extremely small cotton fibres or any other fibre source such as wood pulp, milk protein, etc. Chemicals are used to dissolve these and the solution is then converted into solid fibres. Examples are rayon (cellulose out of viscose/acetate/triacetate) of different types, casein fibre (from milk) and soya bean fibre.
  - Synthetic fibres** - These are made using various petrochemical products. Nylon, acrylic and polyester are all synthetic fibres.

It is advisable to use garments made of natural fibres which are eco-friendly in nature. Sometimes synthetic fibres may cause allergies if worn next to skin. Sources of commonly used natural and man made fibres are presented in Table 10.1.



Notes





Notes

Table 10.1 Commonly used natural and man-made fibres

Type of fibres	Name of fibre	Sources
<b>NATURAL FIBRES</b>		
Plants (cellulosic)	cotton	cotton ball
	linen	bark of flax stalk
Animal (protein)	wool	hair of sheep, goat, rabbit, llama etc.
	silk	silk worm
<b>MAN-MADE FIBRES / MANUFACTURED</b>		
Regenerated	rayon (viscose, acetate)	cotton linters or wood pulp + chemicals
Synthetic	nylon	chemicals
	polyester	chemicals
	acrylic	chemicals

### 10.2.2 Classification according to the Length of Fibres

The fibres we have listed above are short or long. The short length fibres are called **staple fibres** and are measured in inches or centimeters, e.g., cotton, wool and linen. The long fibres are known as **filaments** and are measured in yards / meters, e.g., silk and all man-made fibres.

	Length of fibre	Class	Appearance	Unit of measurement
<b>FIBRE LENGTH</b>	long	filament fibres		yards / meters
	short	staple fibres		inches/ centimeters

### 10.3 COMMON CHARACTERISTICS OF DIFFERENT FIBRES

- i) **Cotton:** Cotton fibre is the smallest of all the textile fibres. They are white, cream or light brown in colour and fine and strong. These are absorbent, porous and cool and allow the body heat to go out. Hence, fabrics made out of it are used as summer wear as cotton wrinkles very easily. Fabrics made from cotton are strong, durable and easy to wash and are used to make towels, sheets, pillow covers, etc., that require frequent washing.



Notes

- ii) **Flax:** It is a 'bast fibre' and fabric made from it is called linen. It is a staple fibre though its length (20-30 inches) is more than the other staple fibres available. Linen fabric is shiny, smooth, durable and easy to wash. Like cotton, it wrinkles very easily, is cool, absorbent and is suitable for summer wear.
- iii) **Jute:** Like flax jute is also a bast fibre. Maximum production of jute is in India. The fibres are short and lustrous but weaker than flax. The fibres are hairy and generally rough. It is used for making gunny bags and cords.
- Jute Garments**  
As jute is a rough fibre, so these days jute is mixed with other soft fibres for fabric construction. Also increasingly these days accessories like slippers and bags made out of Jute are in popular demand.
- iv) **Wool:** It is obtained from the fleece of domestic goats, sheep, rabbits, etc. The colour of wool fibres may vary from off-white to light cream. Fabrics made from wool are soft, smooth, absorbent and do not wrinkle easily. These do not allow the body heat to go out and act as insulators. This is why the fabric made out of these fibres is used as winter wear. Wool is a weak fibre and is easily affected by common washing soaps, powders and friction.
- v) **Silk:** Silk is a natural, protein filament produced by silk worm. Fabrics made from silk are soft, fine, smooth, lustrous, warm and stronger than wool. It is called 'Queen of the Fibres' and is used for formal wear.
- vi) **Rayon:** It is a man-made filament fibre which is lustrous, smooth, cool and absorbent but is weak in nature. It wrinkles very easily. Because of its close resemblance to silk, rayon is also called 'artificial silk' or 'art silk.' It is used as a summer wear. These fibres are **thermoplastic** in nature i.e., they are heat sensitive and soften and melt on application of heat.
- vii) **Synthetic fibres:** Synthetic fibres are made from petroleum products. Nylon, polyester, acrylic, etc., are the examples of synthetic fibres. Like rayon these are also thermoplastic fibres. Since these fibres catch fire easily and can stick to the body, they should not be worn while working in kitchen and near a flame. Synthetics do not wrinkle and can be made dull or shiny. They have good strength and are easy to wash and dry quickly. In other words, these fabrics are easy to care and maintain.



### INTEXT QUESTIONS 10.1

1. Match column A with column B and fill in the given blanks-

A		B	
_____	i) Jute	a)	Plant fibres
_____	ii) Cotton	b)	Man-made fibres



Notes

- \_\_\_\_\_ iii) Wool
- \_\_\_\_\_ iv) Rayon
- \_\_\_\_\_ v) Silk
- \_\_\_\_\_ vi) Nylon
- \_\_\_\_\_ vii) Cellulosic fibres
- c) Bast fibre
- d) Regenerated fibre
- e) Natural fibre
- f) Animal fibre
- g) Silkworm
- h) Flax

### 10.4 IDENTIFICATION OF FIBRE THROUGH NON-TECHNICAL TEST

#### 10.4.1 Identification of fibres by visual test and feel of the fabric

By now, you know the names and some basic properties of fibres obtained from different sources. On the basis of this knowledge can you identify the fabric you are buying? Yes, to some extent you can. If you remember the characteristics of a fibre then you will also know the properties of the fabric made out of it because the fabric will have the same properties. Look for these properties in the fabric and add to this your personal experiences like touch, feel and visual inspection of the fabric. Chances are that you will be able to name the fabric.

In the following Table 10.2 we are presenting to you some of the typical characteristics of different fabrics. If you examine visually, these will help you to recognize the fabric/ fibres.

**Table 10.2: Characteristics of Different Fabrics which help Identification**

<i>Fibres</i>	<i>Appearance</i>	<i>Touch</i>	<i>Feel</i>	<i>Care required</i>
Cotton	dull in appearance but lustrous when starched	feels smooth and soft to touch	gives a cool feeling	wrinkles easily more if it is starched
Linen	low to medium luster	soft and smooth texture	gives a warm feeling	wrinkles easily
Jute	dull	Rough and hairy texture	gives a warm and rough feeling	does not wrinkle easily
Wool	medium to low luster; poor quality has no luster	soft, smooth and absorbent; also bulky to look at.	warm to touch	does not wrinkle easily

Silk	delicate looking and lustrous	smooth, soft and light	warm to touch	does not wrinkle easily
Rayon	can be lustrous or without it	soft and shiny but heavier than silk	gives cool feeling	wrinkles easily
Synthetic fibres	can be dull or semi dull or lustrous acrylic fibres look like wool	heat sensitive soften and melt on application of heat	most fabrics feel warm	able to withstand friction and do not wrinkle hence easy to care.



Notes

To test the information given in table 10.2, select various items of clothing you are using and observe the nature of the fibre in terms of appearance, touch and feel.

### 10.4.2 Identification of fibres using Burning Test

Burning test tells us about the composition of fibres. i.e., whether the fibres of a fabric are from a plant / animal source or are man-made. Follow the steps mentioned below to conduct the burning test:

Take out a few strands of fibres from a yarn or a fabric and then burn them with the help of a candle flame or a match stick. Observe the following points and record your observations :

- The behaviour of the fibres **on approaching the flame, in the flame, on burning, and the residue left after burning.** Since different types of fibres have specific burning pattern, one can recognize them accordingly.

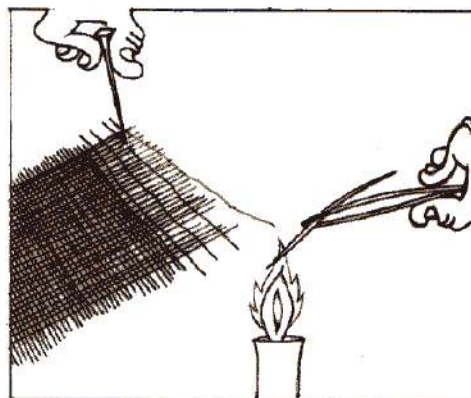


Fig. 10.3 Burning Test

Table 10.3 Describes the Burning tests for identification of fibres

<i>Fibre</i>	<i>Near flame</i>	<i>Type of burning / flame</i>	<i>Odour of burning</i>	<i>Residue</i>
cellulosic fibres – cotton, linen, jute, rayon, etc.	catches fire easily	continue to burn with a bright flame; have an afterglow	burning paper like smell	light, feathery, grayish /black smooth ash
protein fibres – wool, silk	smolder and burn	slow flickering flame; sizzle and curl	Burning hair or feathers like smell	silk-crisp dark ash; wool- dark, irregular, crushable bead



### Notes

synthetic fibres –nylon, polyester, acrylic, etc.	shrink on approaching flame	soften, melt and burn	mixed smell of chemicals	hard, black uncrushable bead
------------------------------------------------------------	-----------------------------------	--------------------------	-----------------------------	------------------------------------

**Limitations of the burning test** - The result of the burning can be confusing if the fabric is made by mixing two or more types of fibres or yarns.



### ACTIVITY 10.2

**Identify yarns made from different fibres by breaking test** – Collect samples of fabrics made from different fibres. Take out yarns from each of these and keep each one separately. One by one, hold each yarn in both the hands and break it. You will observe the following:

1. cotton - breaks easily, has brush like tips and slightly curled fibres.
2. flex - stronger than cotton, needs more strength to break.
3. jute - yarn breaks easily.
4. wool - yarn stretches and breaks with a brush like tip.
6. silk - yarn breaks with a jerk.
7. rayon - yarn breaks easily and does not have brush like tip.
8. synthetics - yarn stretches and does not break easily.



### INTEXT QUESTION 10.2

1. One evening, Geet was busy cooking dinner and her father was in the garden. Suddenly, Geet saw her *dupatta* had caught fire. She shouted loudly and ran out of the kitchen. Her father saw flames and rushed towards her with a cotton sheet. He quickly wrapped it around Geet to put off the flames.

He immediately took her to hospital. Doctor said Geet had received burns because the *dupatta*, made from polyester, had melted and stuck to her skin. Her father had received only a few scalds while wrapping Geet with cotton sheet and putting off the flames. Since he was wearing cotton *kurta*, *pyajama* he was saved.

The doctor appreciated her father's presence of mind in wrapping a sheet that helped in extinguishing the fire immediately. Fortunately the burns were not very severe and Geet recovered soon.



Notes

Answer the following questions:

- i) Why did the *dupatta* catch fire?
  - ii) Why did the *dupatta* get stuck to the body after catching fire?
  - iii) Why was Geet's father relatively safe from burns?
  - iv) What type of fabric should you prefer to wear while working in the kitchen?
  - v) List three other fabrics which can be worn while working near fire.
  - vi) People know that synthetic fabrics catch fire easily yet most of them wear these clothes while working in the kitchen. Convince them in about 30 words about merits of changing into cotton clothes before working in the kitchen.
2. Fill in the blanks -
- i) If wool: winter, then \_\_\_\_\_ : summer
  - ii) If bark: flax, then \_\_\_\_\_ : wool
  - iii) If cotton: king of fibres, then silk : \_\_\_\_\_
  - iv) If regenerated fibres : wood pulp, then synthetic fibres: \_\_\_\_\_
  - v) If linen: cotton, then acrylic : \_\_\_\_\_
3. Put a tick mark on the right option. Justify the chosen option.
- True/False a) Cotton is a filament fibre.  
\_\_\_\_\_
- True/False b) Length of staple fibres is measured in inches.  
\_\_\_\_\_
- True/False c) Acetate is a man made fibre.  
\_\_\_\_\_
- True/False d) Natural fibres can be made from chemicals.  
\_\_\_\_\_
- True/False e) Wool is a plant fibre.  
\_\_\_\_\_
4. Search names of fibres in Wonder box. Hints are given below.
- a. I am soft and look like silk.
  - b. I become lustrous by starching.
  - c. I look like wool.
  - d. I am smooth and lustrous.
  - e. I am rough to touch.



Notes

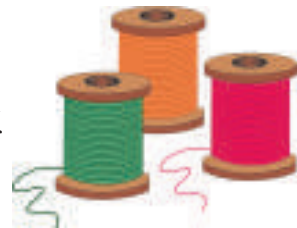
- f. I give warmth in winters.
- g. I am easily washable.
- h. I wrinkle easily.

WONDER BOX

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

**10.5 YARNS, YARN MAKING AND FABRIC CONSTRUCTION**

A **yarn** is a long continuous length of interlocked fibres. Strands of fibres are brought closer to each other by twisting. Twists impart strength to the fibre strand which is then termed as a yarn. It is suitable for the production of fabrics, thread for sewing, crocheting, knitting, embroidery and/or rope making. A **thread** is a highly twisted and smooth strand of fibre. It is used for sewing, embroidery, etc.



**10.5.1 Process of yarn making**

**a) Spinning of yarns**

Do you know how a yarn is made? Yes, you guessed it right, a yarn is spun. Spinning is the process by which a group of fibres is pulled, drawn and twisted together to make a yarn. Do you remember Mahatma Gandhi and his *charkha* or the spinning wheel? Mahatma Gandhi, would daily take a hand full of cotton and spin it into a yarn on his *charkha*. He promoted *charkha* during India’s freedom struggle as a symbol of self-reliance and a source of income.

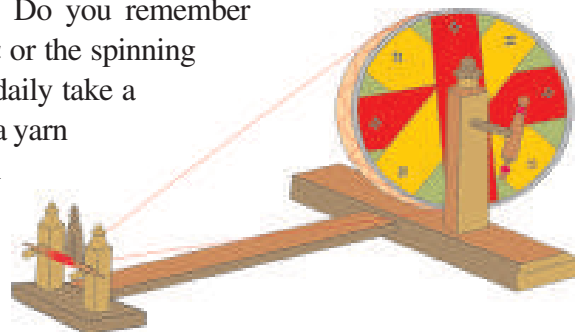


Fig. 10.4: A traditional spinning wheel (*charkha*)



A *charkha* is for hand spinning. The yarn spun on a *charkha* can have different thickness. Thick yarn is used for floor coverings, medium thickness for upholstery items and fine quality yarn is used for making dress material. Different types of fibres - cotton, wool, hemp and silk are spun on *charkha* in the villages in many states of India.

Twists given to fibre strands for formation of a yarn can be either ‘**S-twist**’ (clockwise) or ‘**Z-twist**’ (anticlockwise). The quality and strength of yarn is affected by the number of twists in inch. Lesser the number of twists per inch, bulkier and less strong is the yarn and more the number of twists, finer and stronger is the yarn. Figure 10.5 shows S and Z twists and Figure 10.6 shows number of turns in a yarn.

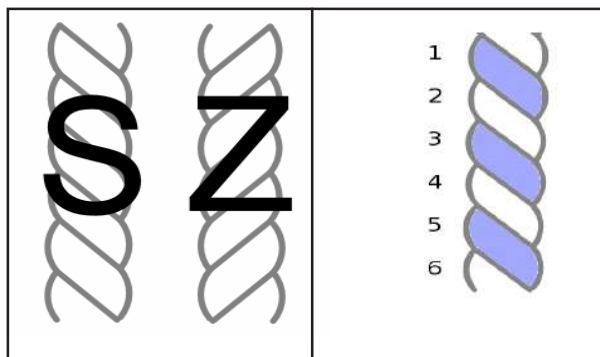


Fig. 10.5 S and Z twists

Fig. 10.6 Number of turns in a yarn

### b) Spinning by Machine

Both, the fibres as well as filaments are spun into yarns that are then used for different end uses. Fibres available in the filament form are first cut into short lengths and then made into yarns called spun yarns. Various steps followed for making yarns are :

- i) **Cleaning:** When the natural fibres are harvested or collected, these contain dry leaves, stems, seeds, dirt and unwanted materials that are removed during cleaning.
- ii) **Carding:** The fibres sometimes get matted and stick to each other. Carding machine opens and arranges the fibres in a parallel manner. The carded web of fibres is turned into a soft rope called **sliver**.
- iii) **Combing:** It is an optional step used for making fine quality yarn. Carded slivers are combed to separate long and short fibres with the help of series of combs.

Cleaning, carding and combing steps are omitted while making spun yarns from cut filaments of synthetic fibres. For these synthetic fibres only spinning and winding is done.

- iv) **Spinning:** Carded and combed slivers are further drawn and spun into yarns. The yarn is a single strand but may be plied into several strands:

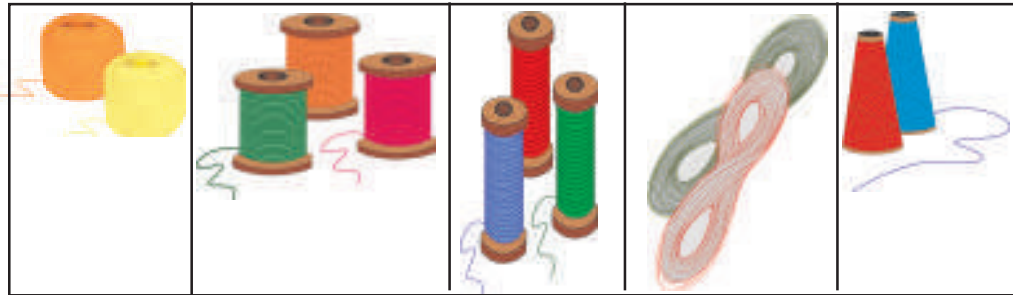


Notes



Notes

v) **Winding:** The yarn is wound into various packages according to the weight or length of the yarn and its end use. Some of the common yarn packages for fabric construction are- ball (yarns for hand knitting), reels or bobbins for sewing; embroidery and hanks, cones, etc. Figure 10.4 shows some packages of yarns.



balls                      reels of sewing thread                      reels of embroidery thread                      yarn hanks                      cone

**Fig. 10.7: Packaging of yarn in balls, reels, hank and cone**

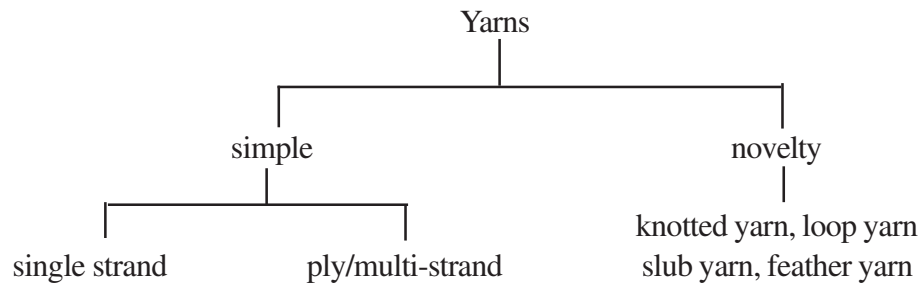
After spinning, a specific length of yarn is wound in the form of packages called balls, reels, hanks, cones, etc., depending on the weight or length of yarn and its end use.



**ACTIVITY 10.3**

Collect some sewing thread reels and knitting yarn balls lying at home. Check the length of the yarn printed on sewing thread reel. You can also collect reels and balls of yarn of different lengths and weights. Are some reels available with 50, 100 and 200 meters thread? You may observe that knitting yarn balls are available with the weight of 25 and 50 grams.

**10.5.2 Classification of Yarns**



The yarns may be classified into two groups: i) simple yarns and ii) novelty yarns

i) **Simple yarns:** A simple yarn has uniform thickness, smooth surface and equal number of twists per inch along its length. Most standard fabrics for clothing and household use are made with these yarns.

- **Single strand:** fine quality single strand is used for constructing light weight and fine fabrics. Thick and rough quality single strand is used for making thick fabrics

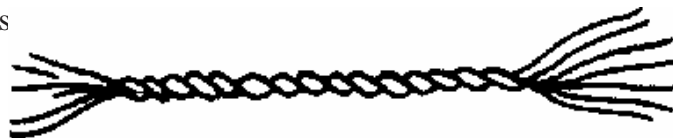


Fig – 10. 8 Simple single yarn

- **Ply yarn:** Two or more than two simple yarns are twisted together to form a ply yarn. These yarns are also known as multiple strand yarns. These can be termed as two-ply, three ply, and so on according to the number of strands used in the construction. These are more durable than simple yarns and are used for making fabrics for suiting, knitting, floor coverings, etc.



**ACTIVITY 10.4**

**Lets make ply yarns**

Follow the steps described below. Paste sample of ply yarns in the space provided.

Pictures of ply yarn	Method	Sample of ply yarn
<p>Fig – 10.9 Double or Two ply yarn</p>	<p><b>Two ply</b> or double ply yarn can be made by knotting two separate single yarns at both the ends or one long single strand plied by holding both ends together.</p>	
<p>Fig – 10.10 Three ply yarn</p>	<p><b>Three ply</b> can be produced by twisting a long single strand yarn. Fold it twice to get three parallel strands. Twist these together and put small knots at both the ends.</p>	
<p>Fig – 10.11: Four ply yarn</p>	<p><b>Four ply</b> are also known as cable yarns. These are usually made by plying two strands of two-ply yarns together.</p>	
<p>Fig –10.12 Cord yarn</p>	<p><b>Cord yarn</b> is a multiple strand yarn. Take 3/4/5 ply yarns and twist together and knot both the ends to get cord yarn. These are generally used for making ropes.</p>	



Notes



Notes

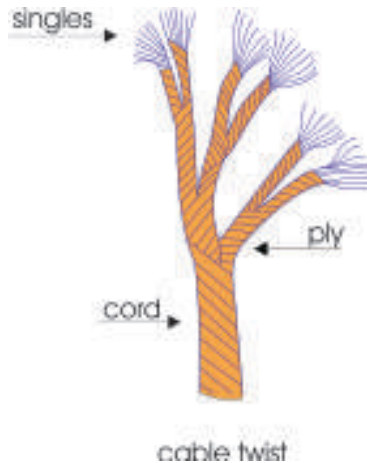


Fig –10.13 Types of yarns

ii) **Novelty yarns:** Carefully observe the curtains, upholstery (sofa) material or sweaters. Take out the yarns from these and study the construction of an individual yarn. You will see that these are of a complex nature and have unusual appearance and texture which are produced during spinning.

Depending upon their appearance, these are given different names like: loop yarn, knot yarn, slub yarn, feather yarn, etc. different types of novelty yarns are shown in figure 10.4 – 10.7

**Types of Novelty Yarns**

Yarn	Diagram
<b>Loop yarn</b> has loops, placed continuously along its length. Example- woolens	<b>Fig. 10.14</b> 
<b>Knots/knops</b> are made along the length of a yarn. Example- woolen and scarves	<b>Fig. 10.15</b> 
<b>Slub yarns</b> have ornamental effects in the form of soft untwisted (thick and thin) and twisted areas at frequent intervals throughout the length. Example- curtains	<b>Fig.10.16</b> 
<b>Feather yarn</b> also called chenille yarns, these have soft and fuzzy surface. Example- rugs	<b>Fig.10.17</b> 

Fabrics made from novelty yarns are bulkier, softer to touch and have beautiful unusual textures but are not as durable as fabrics made from simple yarns.



### INTEXT QUESTION 10.3

- State whether the following statements are true or false. Encircle the right answer.
 

True / False    i)    Silk yarn breaks easily.

True / False    ii)    Bulky yarns need less number of twists in one inch length.

True / False    iii)    Slub yarns have thick and thin places.

True / False    iv)    Cord yarn is made from single yarn.
- Fill in the blanks with appropriate words. Choose the words from the box given along.
 

i)    A simple yarn has uniform _____ in per inch length. ii)    Cord yarn is a _____. iii)    Flex is stronger than _____. iv)    Synthetic yarns stretch and _____.	cotton multiple strand yarn fibres do not break easily thickness synthetic
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------

## 10.6 FABRIC

Fabric is a pliable, strong sheet made from fibres or yarns. You must have heard names such as poplin, *khadder*, *mulmul*, denim, rubia, terricot, etc. All these are fabrics are prepared by weaving the yarn. Human beings learnt to weave by taking inspiration from nature by observing the nests of birds and entangled branches of trees.

Fabrics are manufactured by many techniques such as weaving, knitting, felting, nets, etc. However, **weaving and knitting, the two most popular methods of fabric construction** have been discussed in detail here.

### 10.6.1 Weaving

**Weaving** is interlacing of two sets of yarns –warp and weft at 90° angles to each other. Straight yarns in fabric are known as **warp** yarns. Horizontal yarns are known as **weft** yarns. Along the length of the woven fabric, on both sides, end yarns are woven very densely and the portion is named as **selvedge**. It does not allow the fabric yarns to come out from the lengthwise edge. The portion between the two selvedges is the body of the fabric.

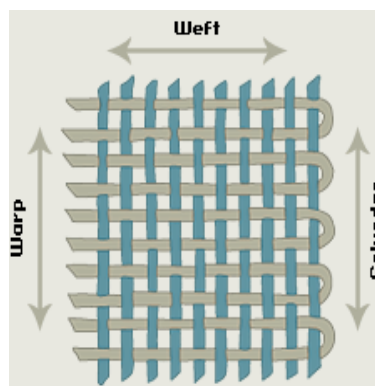


Fig. 10.18 Woven fabric



Notes



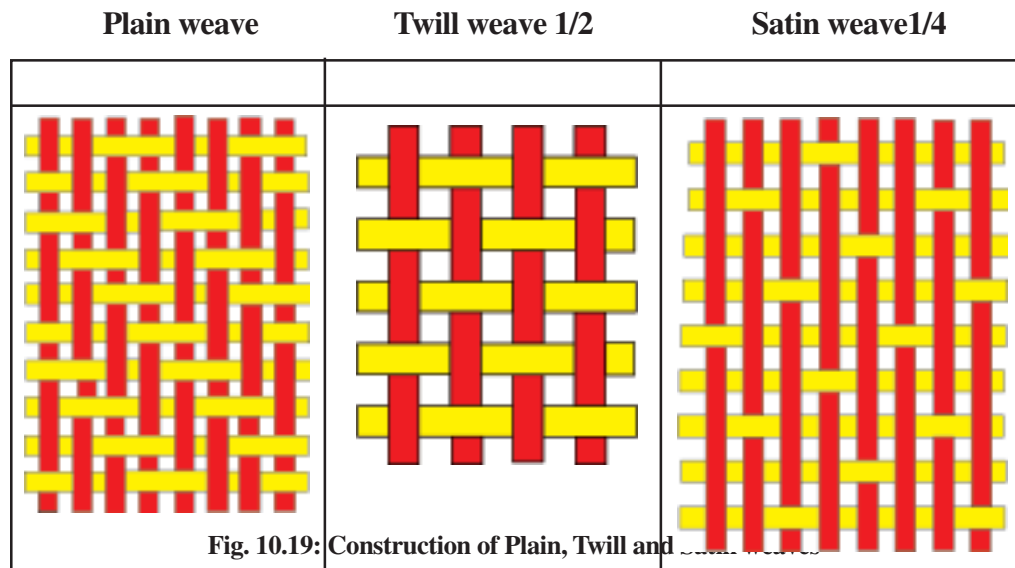
Notes

**Merits of weaving**

- Weaving gives a firm fabric.
- Woven fabrics do not stretch and are thus easy to handle.
- Woven fabrics are easy to print and embroider.
- Weaving is most commonly used method of fabric construction.

**10.6.1 i) Basic Weaves**

Weaves are broadly classified as **basic and novelty weaves**. Most of fabrics are produced in **basic weaves**, which are of three types- **plain, twill and satin weave**. Their construction is explained in figure 10.19



- a) **Plain weave** - Plain weave is also known as homespun, tabby or taffeta weave. It is the easiest to weave where one weft yarn alternatively moves over one and under another warp yarn. Maximum production of fabric is done in plain weave. It is inexpensive weave, most suitable for printing and embroideries. To see the variations of the weave, note the fabrics like muslin, cambric, hand spun and hand woven khaddar, organdy, poplin, voile, etc.
- b) **Twill weave** - It is woven on three to four harness loom. In this, one weft yarn moves over two and under one warp yarn. Twill woven fabric is distinguished by a continuous diagonal line called wale. Variation in diagonal lines produces various designs of twill. Twill weave is woven tightly, that is why it is suitable for work clothes and for men's clothes. Examples of Twill woven fabrics are gabardine, tweed, denim, jean, etc.
- c) **Satin weave** - It is woven on five to twelve harness loom. If woven on a five harness loom, one weft yarn passes under 4 warp yarns and goes over one warp

yarn. It differs from Twill weave as it has long yarns floating on the surface. There is no design visible on the face of the fabric but it has a smooth and shiny surface. Satin fabric is an example of satin weave. Fabrics woven in this weave are suitable for making formal wear garments.

**Handlooms** are the second largest employer of the rural population in India, next only to agriculture. Handloom fabrics are made from either hand spun or mill spun yarn that has been woven on a handloom. In India, do you know *khadi* is a term given to a fabric which is made from hand spun yarn and is woven on a handloom. *Khadi* has a coarse texture and rough feel. However, many varieties of *khadi* like *khadi* cotton, *khadi* wool, *khadi* silk, heavy and light weight *khadi* are available on retail outlets of *khadi*. These fabrics always remain in fashion with consumers and have a large export market. *Khadi* movement in India was started by Mahatma Gandhi during the freedom struggle primarily as a symbol of self-reliance and a means of livelihood for the unemployed rural population.



Notes



### ACTIVITY 10.4

Interview the weavers in your area to know how do they weave and what do they weave? What type of yarns do they use? What is their average daily/monthly income? Where do they sell their products? Are they able to sell their products easily?

OR

Visit a tailor in your area and ask which type of fabrics does he or she stitch most often? Which fabric is easy to handle while stitching and why? How does he or she decide on the type of needle and thread to be used for stitching? How does he decide on the cost of stitching a garment (salwar kurta/blouse/shirt/trousers)?

### 10.6.2 Knitting

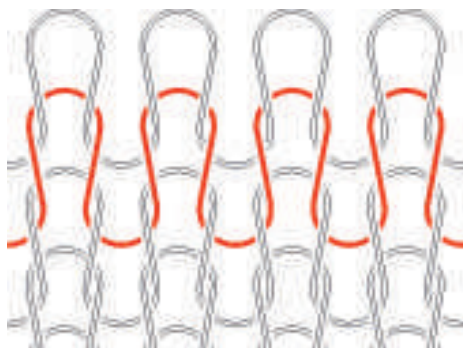


Fig.10.20 Formation of loops

**Knitting** is the process of formation of loops of yarns and drawing of new loops through those formed previously (interlooping). Depending on the types of knitting, it either moves right to left or left to right (weft knitting) or the yarns run lengthwise (warp knitting). Hand knitting is the most common example of weft knitting, though it is also done on machines to make many types of sweaters, T-shirts, and socks, etc. Warp knitting is only possible on machines. Knitted fabrics are



Notes



Fig. 10.21 Knitted fabric

used to make casual wear, party wear, sportswear, undergarments as well as household articles such as bed sheets, bed covers, blankets, etc. See figure 10.20 which shows the formation of loops while knitting. Figure 10.21 shows a knitted fabric.

Knitted fabrics are well known for their fit, comfort, stretchability, warmth, absorbency, and wrinkle resistance.



**INTEXT QUESTIONS 10.4**

1. Fill in the blanks with appropriate words.
  1. Hand knitting is known as \_\_\_\_\_  
\_\_\_\_\_ (warp knitting / weft knitting)
  2. *Khadi* Movement in India was started by \_\_\_\_\_  
\_\_\_\_\_ (Mahatma Gandhi / Jawaharlal Nehru)
  3. Selvedge refers to \_\_\_\_\_  
(width / length of fabric)
  4. Woven fabrics \_\_\_\_\_  
(stretch / do not stretch)
2. Unscramble the following jumbled words to identify the names of some fabrics—
  - i) \_\_\_\_\_ niemd
  - ii) \_\_\_\_\_ bargadine
  - iii) \_\_\_\_\_ ydnaorg
  - iv) \_\_\_\_\_ twelo

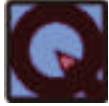
**10.7 END USES OF DIFFERENT FABRICS**

When you go to a shop, you give specification of the fabric you want, to the salesperson. Often you go to different shops to buy fabric or ready made garments. In other words, shops usually specialize in the type of items they sell. This way it is easy for you to find what you want and the shop can also stock good variety of related products.

Since you have already studied about the properties of various types of fibres, yarns, fabrics and weaves, it will be easy for you to use this knowledge to recognize fabrics and choose them for the end use in your mind.



Cotton fabrics are available in the form of muslin, khadi, poplin, rubia, organdy lawn and denim. Similarly, wool is available in the form of felt, knits and woven fabric silk fabric is available as raw silk, crepe and satin silk.

**INTEXT QUESTIONS 10.5**

Notes

Choose the correct answer of the four given at the end of each statement

1. 1. Muslin is a fabric which is \_\_\_\_\_.
  - (a) light weight and loosely woven
  - (b) transparent and crisp
  - (c) heavy weight and thick
  - (d) medium weight and plain
2. 2. Denim is a fabric which is \_\_\_\_\_.
  - (a) light weight and loosely woven
  - (b) transparent and crisp
  - (c) heavy weight and thick
  - (d) medium weight and plain
3. 3. Organdy is a fabric which is \_\_\_\_\_.
  - (a) light weight and loosely woven
  - (b) transparent and crisp
  - (c) heavy weight and thick
  - (d) medium weight and plain
4. 4. Poplin is a fabric which is \_\_\_\_\_.
  - (a) light weight and loosely woven
  - (b) transparent and crisp
  - (c) heavy weight and thick
  - (d) medium weight and plain



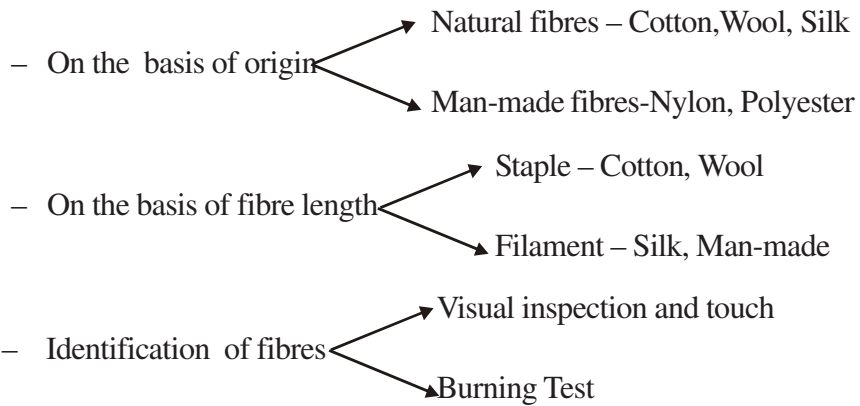
Notes



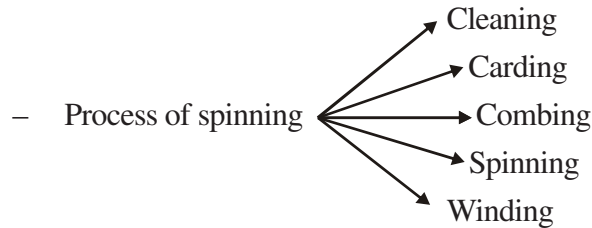
**WHAT YOU HAVE LEARNT**

- Clothes → Their functions and importance
- Fibre → Yarn → Fabric
- Textile Fibres

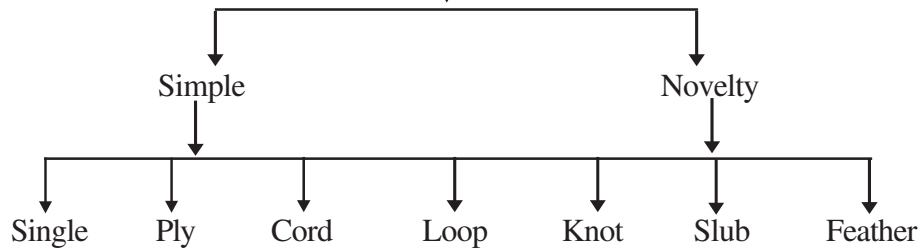
Classification of fibres



- Yarns



Classification of Yarns



- Fabric

Weaving                      Basic weaves – Plain, Twill and Satin  
 Knitting                     Warp and Weft knitting

- End uses of different fabrics



### TERMINAL EXERCISE

1. Give one difference between the following-
  - i) Coarse and fine yarn
  - ii) S and Z twist
  - iii) Four ply and cord yarn
  - iv) Spun and filament yarns
2. Why do Nylon, Polyester and Acrylic catch fire easily?
3. Read the case study given below and answer the questions given at the end:

Ginni was extremely unhappy because a red rash was spreading all over her body and was very painful. She had tried many local applications to get rid of them, but nothing helped. The rash was causing irritation and made her feel uncomfortable.

She discussed her problem with her friend Shyama who suggested her to consult a doctor in the village dispensary. In the dispensary the doctor looked at her skin problem and noticed the fabric of her dress. She asked Ginny if she wore the same dress often. Ginni said yes because she liked the dress very much. It was a fashionable dress, easy to wear, carry and maintain.

The doctor advised Ginni not to wear the dress again for sometime. In warm climate it did not allow the skin to breathe fresh air, caused sweating which led the skin to become irritable and cause the red rash.

But Ginny was not convinced. She thought, everybody wore dresses made from similar material and had no complaints. If nobody else had any problem in wearing such clothes why she should have any. Surely she thought that her problem could not be due to the clothes she wore. So she did not stop wearing her favourite dress.

**Some questions to ponder (if possible discuss with peer group or with people at home)**

If you were Ginni's friend what would you advise her to do? How would you convince her?



### ANSWER TO INTEXT QUESTIONS

- 10.1** 1. i) c    ii) a    iii) f    iv) d  
v) g    vi) b    vii) e.



Notes



Notes

- 10.2**
2. i) Cotton ii) Fleece iii) Queen of fibres iv) Petroleum products  
v) Wool.
  3. a) False – Cotton is a staple fibre  
b) True  
c) False – Acetate is a Regenerated fibre  
d) False – wool is a protein fibre  
e) True.
  3. Wonder box -

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

- (a) RAYON
- (b) COTTON
- (c) ACRYLIC
- (d) SILK
- (e) JUTE
- (f) WOOL
- (g) NYLON
- (h) LINEN

**10.3**

1. i) False - Silk yarn breaks with a jerk.  
ii) True  
iii) True  
iv) False - Cord yarn is made from 3/4/5 ply yarns. It is multiple strand yarn.
2. i) Thickness ii) Multiple strand yarn  
iii) Cotton iv) Do not break easily.

**10.4**

1. i) Weft knitting ii) Mahatma Gandhi  
iii) length of fabric vi) do not stretch
2. i) Denim ii) Gabardine  
iii) Organdy iv) Towel

**10.5**

1. a 2. c 3. b 4. d



## 11

## FABRIC FINISHES

Marie-Ann and some of her friends had joined a hobby class to learn fabric painting. While evaluating individual articles, they noticed that the colours of some of the articles were not uniform despite the fact the same colour had been used to paint all of them. When they asked the instructor about it, they were told that the cotton fabrics with uneven colour-spread had been given some finish which needed to be washed before using fabric painting colours. What does this mean? Do colours behave differently on different types of materials? You have learnt about starching and heard terms like dyeing, printing, mercerization, etc. What are these processes and how do these influence the functions of fabric? In this lesson we will try to answer these and many similar questions.



### OBJECTIVES

After studying this lesson you will be able to do the following:

- explain the meaning and importance of finishes given to fabrics;
- classify various finishes according to their properties;
- describe the effect of the application of basic finishes on fabrics;
- enumerate special finishes and explain the ways of employing them;
- elaborate the methods of dyeing and printing;
- evaluate different techniques of decorative dyeing and block printing on fabrics.

### 11.1 TEXTILE FINISHES

You know that the word “textile” means the complete study of fibres, yarns and fabric. Certain treatments are applied to improve the look and qualities of textile goods. These treatments are called finishes. **A finish is a treatment given to a fabric, to change its appearance, handling /touch or performance. Its purpose is to make the fabric more suitable for its end use.**



Notes

A series of treatments are given in mills to finish textiles goods, for example: a fabric is washed, bleached, dyed or printed, starched and ironed before it is sent to the market.

When a fabric is given a finish, it is known as a finished textile. But it is not a must that all the textile-products are finished before use. When no finish is applied on the textiles, these are termed as **gray goods or unfinished textiles**. This does not mean that the fabric is gray in colour. It implies that no finishing treatment has been given to it.

Gray goods lack customer appeal and you will not like to buy these for your dress or shirt. Can you say why? Yes, you are right. It is because in the absence of any finish, fabrics has dull and shabby appearance.

Different colours or prints on fabrics are also finishes and these make fabrics look attractive.

**Gray goods are the term used for fabrics that come directly from the loom and are used as such. These are not actually gray in colour but are ‘unfinished’.**

**Finish includes any general treatment given to clean and iron fabrics and create exclusive variations of them by using chemical treatments, dyeing, printing, etc. to make fabric attractive and appealing.**

Some major differences between ‘Unfinished and finished fabrics’ are as follows:

Unfinished / Gray fabric	Finished fabric
Dull looking, available only in natural colours- off white, brown, black, etc.	Lustrous, attractive, available in different tints and shades of colours, prints, etc.
Wrinkled, stained, with broken threads, uneven in width, etc.	Smooth and wrinkle-free, no defects on the surface, even width, free from stains, etc.
Relatively less expensive.	Cost of fabric depends upon the type of the fibre along with the number and type of finishes applied.
Lack customer appeal, are purchased only for rough work, backing, packaging, etc.	Customers get attracted and buy.

### 11.1.1 Importance of Textile Finishes

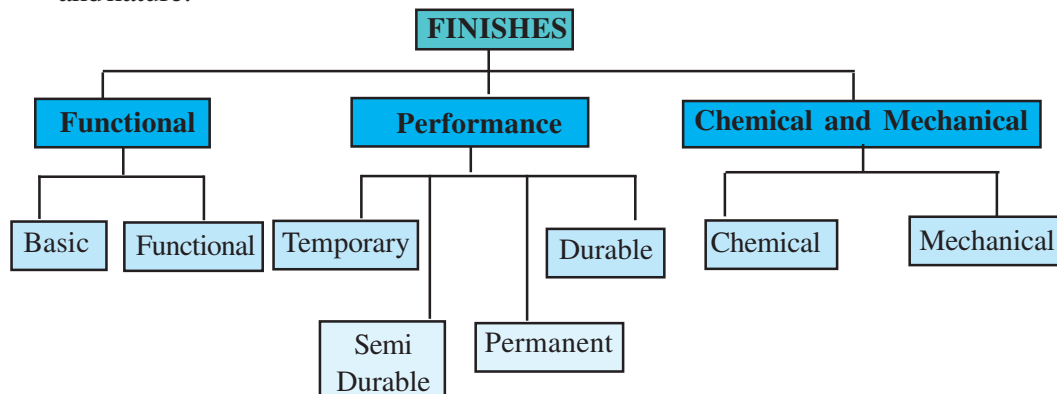
Textile finishes are important because of the following reasons. The finishes help to:

- improve the appearance of fabric and enhance its looks;
- produce variety in fabrics through dyeing and printing;
- improve the feel or touch of fabric;

- make the fabric more useful;
- improve the draping ability of light weight fabrics;
- make fabric suitable for an end (specific) use.

## 11.2. CLASSIFICATION OF FINISHES

Finishes can be classified in several ways depending upon their functions, performance and nature.



### 11.2.1 On the basis of function

The finishes may be basic or functional

- i **Basic** or common finishes are applied to almost all the fabrics, with an aim to improve their appearance, feel and body. Pale white cotton fabrics may be bleached to improve their whiteness. For better look of a thin cotton fabric, starch is applied to increase its weight and shine. Steam Ironing, Calendaring (industrial ironing) is a basic finish. These are also known as aesthetic finishes.

Dyeing and printing are also considered as finishes as they enhance the aesthetic appearance of fabrics.

- i **Functional** or special finishes are applied to improve the performance of a fabric for some specific purpose, for example-
- fireproof finish prevents the burning of fabrics used by fire brigade personnel,
  - waterproof finish makes fabrics water repellent for making umbrellas and raincoats,
  - bulletproof finish on fabric saves the people from bullets and is generally used by defence and police personnel for their safety, and
  - crease-resistant finish makes cotton/wool fabric wrinkle resistant.

### 11.2.2 On the basis of degree of performance

On the basis of performance, finishes are temporary, semi durable, durable and permanent.



Notes



- i **Temporary** finishes are not durable and run off after first washing or dry-cleaning. Many of these are renewable and can be reapplied at home, e.g. starching and blueing of white fabrics.
- ii **Semi durable** finishes stay on the fabric surface for several washings, e.g. bleaching and certain dyes used on cotton.
- iii **Durable** finishes last through out the life of a fabric or a garment but may lose its effectiveness after many washes, e.g. permanent pleats, wrinkle resistant, etc.
- iv **Permanent** finishes are usually given by a chemical treatment. It changes the fibre structure and remains as such on the fabric for the entire life of a fabric, e.g. waterproofing, fire proofing, etc.

### 11.2.3 Chemical and Mechanical Finishes / Wet and dry finishes

On the basis of processes involved in application of finish, there are two types—chemical (wet) and mechanical (dry) finishes.

- i **Chemical finishes:** These are also known as wet finishes. In these, chemical treatment is given to fabric, either to change its appearance or basic properties. These finishes are usually durable and permanent or wet finishes. Examples are: fire proof, crease resistance, etc.
- ii **Mechanical finishes:** These are also known as dry finishes. Here the process consists of application of moisture, pressure and heat or a mechanical device to finish a fabric. Beating, brushing, calendaring, filling, etc. are some of the finishes included in this group. These finishes are either temporary or semi durable and do not last long.

We will learn more about these finishes further in the chapter.



### INTEXT QUESTIONS 11.1

1. Fill in the blanks after unscrambling the clues in the brackets:
  - i. The treatment given to fabrics to enhance their appearance, performance or handling is known as \_\_\_\_\_ (N I F S I H E).
  - ii. When no finish is applied on a fabric's surface, it is known as \_\_\_\_\_ fabric (R A Y G).
  - iii. \_\_\_\_\_ and \_\_\_\_\_ produce variety in fabric (Y E D I N G, N I N G P R I T).
  - v. A chemical finish is also known as \_\_\_\_\_ (E T W - I S H F I N).
  - vi. Waterproof finish is a \_\_\_\_\_ finish. (N C F U T I O N A L).



### 11.3. BASIC FINISHES AND THEIR TYPES

Now that you know about different types of finishes, let us learn a little more about basic finishes. Different types of basic finishes are –

#### (i) Scouring / Cleaning

Fabric, as it comes from the loom, is dull in appearance. It may have stains of oils as well as starches, waxes, etc., that are applied to yarns to make weaving easier. Once the fabric is woven, the presence of these additives hinders further finishing processes such as bleaching, dyeing, printing, etc. Therefore, these need to be removed before sending the fabric for further processing. Scouring is the process of washing fabric with soap solution. **Scouring is the process of industrial cleaning of fabrics with the help of warm water and soap solution. It cleans the fabric and makes them more absorbent.** The method of washing a fabric is chosen according to the nature of fibre. Cottons are boiled in soap solution for cleaning. Silks are boiled to remove silk gum (degumming) while the wool fibres are boiled with soap solution to remove grease and oils. Fabrics made from man-made fibres are given normal washing. After cleaning, the fabric becomes smooth, neat and more absorbent.



#### ACTIVITY 11.1

#### Carry out this experiment and note your observations

Take two fabric pieces of 4" x 4" size of white colour, one of these should be new and the other old and washed. Put both the pieces of fabric in water. What do you observe? The old one will sink faster because it is more absorbent as it has no finishes or starch on the surface. The new fabric will first float on the water. Gradually water penetrates through the starch applied on the fabric surface, and the fabric sinks.

#### (ii) Bleaching

At home you use lemon, milk, curd and facial bleach to remove sun-tan. A similar treatment is also given to fibres. Many a times natural fibres like cotton, silk and wool are available in pale/light brown colour. Suppose you have to paint some thing in light pink colour, unfortunately the brush was not washed properly and had remains of brown in it. What do you think will happen? You will not get the pink you wanted. This becomes a problem as light shades of dyes do not come out well on such fibre colours. To get exact light shade of the colour, the existing colour has to be removed. **Bleaching is a chemical treatment given to fibres, yarns or fabric to remove paleness or colour and make them white.** Suitable bleaching agents such as hydrogen peroxide for protein fibres and sodium hypochlorite for cottons, are used. Man-made fibres do not need bleaching. Fabrics have to be carefully bleached as bleach can harm the fabric if used in high concentration.



Notes



## Notes

**(iii) Starching / Stiffening**

Starch is generally applied to fabric of fine quality and light weight or loosely woven fibres. Starching makes the fabric heavier, stiff, and crisp. It also adds shine and smoothness to the fabric. Cottons – muslin, poplin, cambric and thin silks are generally starched.

Sometimes the loosely woven cotton fabric is starched heavily so that their quality looks better but the starch comes out with the first wash and the basic loosely woven structure of the fabric becomes prominent. Therefore, starched fabric should be examined properly before purchasing.

**ACTIVITY 11.2**

- Take the starched cotton fabric. Try to look through it. You will notice that light can not pass through the fabric surface.
- Place a black sheet of paper on table. Hold the starched fabric in your hands and rub it.

Starch particles will fall on the black paper in the form of white powder. Now hold this fabric against light. Yes, you can see light through the open spaces in the weave.

Based on your experience above, answer the questions given below. Give reason.

- Will you use this fabric as a fall for a saree?
- Will you use this fabric to make a shirt?
- Will you use this fabric as a backing for a blouse?

**(iv) Calendering**

Why do you iron the garments at home? It is to remove wrinkles and make them look better. This is the simplest and the common finish used to improve the looks of any gray or finished fabric. Similarly, through the process of **Calendering or industrial ironing a fabric is passed through a series of smooth hot rollers to remove wrinkles and to make it smooth.** It makes the fabric smooth and lustrous, thereby improving its appearance.

**11.4. SPECIAL FINISHES****(i) Pre-shrinking**

You must have heard your mother saying that the cotton kurta that she bought has shrunk and become smaller after the first wash. **Shrinkage** is the reduction of a fabric or a garment in size (length and width) after it is washed or dipped in water. A marked



reduction in size takes place after washing certain cottons, linens and woollens. It is all due to shrinkage. Good quality cottons, linens and wools are pre-shrunk before marketing them. This pre-shrinking is called sanfronisation. Fabrics that are treated for pre-shrinking are labeled as 'sanfronised' or 'anti-shrink' or 'shrink-proof.' All these mean that the fabrics have received a finish for shrinkage control and will not shrink on washing. **Sanforisation is the pre-shrinking treatment given to certain fabrics made from natural fibres to prevent further shrinkage after washing.**



### ACTIVITY 11.3

Sujata was very angry and disappointed because a printed cotton suit she had bought so fondly had shrunk so much that it did not fit her at all. Before buying she had asked the shopkeeper repeatedly if the material was shrink proof. The shopkeeper had assured her that it was

Let us see if the same happens in this experiment

Take a gray cotton fabric of 10'' x 10''. Dip it in water for at least 3-4 hours. Dry and iron it. Measure all sides of the sample again. You will notice a change i.e. reduction in the measurements because the fabric has shrunk.

Discuss the following in a Personal Contact Programme or with friends:

- Best way to ensure that the material of the suit is shrinkproof.
- What else does one need to check about the quality before buying the material?
- Where can one look for such information?

### (ii) Mercerization

Cotton is basically a dull fibre. The fabric made from cotton wrinkles easily and is difficult to dye. It is, therefore, treated with sodium hydroxide to make it strong, lustrous and absorbent. This process is called mercerization. It also improves the dye uptake of fabrics. Now-a-days this finish has become a routine finish for all cottons. Even sewing threads which are used for stitching are mercerized. You will find the word 'mercerized' on the labels of cotton fabrics and reels of sewing threads denoting that the goods have been mercerized.

### (iii) Parchmentization

Have you heard of a fabric called organdie? Take a piece of organdie fabric and carefully observe it. The fabric is different from other cotton fabrics. Yes, it is a thin, transparent, light weight and stiff fabric and seems to be heavily starched. But unlike starched fabric, its stiffness remains intact even after washing. It is not due to a starch but because of application of a finish called parchmentization. In parchmentization, the



Notes

cotton fabric is treated with a mild acid that partially eats away the fabric, resulting in a transparent and stiff fabric called organdy. You don't need to apply starch to organdy fabric.

**(iv) Wash 'n' Wear**

Bhanwari works as a security guard in a school in Bikaner, Rajasthan. The temperature goes as high as 40-42 degrees C. She does not get enough time to maintain her uniform which comprises of cotton clothes that are most comfortable to wear specially in summers. You must have noticed that all the cotton fabrics get crushed very easily. What should Bhanwari do? There is a finish called wash 'n' wear which when applied on cotton fabrics completely changes its nature. The fabric thus treated does not wrinkle too much and becomes easy to maintain. If dried and stored properly, wash 'n' wear fabrics can be worn without ironing or with a little ironing. So, Bhanwari should select a wash 'n' wear fabric for her uniform. Besides cotton, wash 'n' wear finish is also given to linen and wool.

**(v) Dyeing and Printing**

In the market you see a number of fabrics in plain colours or having colourful designs on them. The process of producing colours and designs on a fabric is called dyeing and printing, respectively. Dyeing gives a solid colour to the fabric whereas printing is the application of dye on specified areas to create designs. It is very important for the dyed and printed fabric to be 'colourfast', i.e. the colour should not come out or fade easily. If the colour runs on washing, rubbing or ironing, the fabric looks shabby and old and its design becomes dull or smudged. The colour may also spoil other fabrics during washing. Has this ever happened to you?



**INTEXT QUESTIONS 11.2**

**1. State True or False and explain if the answer is false.**

- (True/False) (i) Scouring is a finish used to clean the fabric.  
\_\_\_\_\_
- (True/False) (ii) Bleaching has no damaging effect on fabric.  
\_\_\_\_\_
- (True/False) (iii) Shrinkage control can be done at home also.  
\_\_\_\_\_
- (True/False) (iv) Organdy is a permanently stiff fabric.  
\_\_\_\_\_
- (True/False) (v) Mercerized thread should be used for stitching.  
\_\_\_\_\_



Notes

## 2. Fill the blanks with the suitable word given at the end of each sentence

- (i) Mercerisation is a \_\_\_\_\_ finish. (renewable / durable).
- (ii) Shrinkage control is indicated as \_\_\_\_\_ on the label. (sanforised / parchmentisation)
- (iii) Wash n wear is a \_\_\_\_\_ finish. (routine / special)
- (iv) If the colour does not bleed on washing, it means fabric is \_\_\_\_\_  
\_\_\_\_\_. (water proof / colour fast)

## 11.5. DYEING AND PRINTING OF FABRIC

Can you imagine wearing a plain white dress or one having same print every day? No, never, even the very thought is unwelcome. It is very difficult to think of fabric without variation in colours, prints or designs.

In the market, you will find fabric in all tints and shades of colours, small and big prints, woven in colourful designs. All these are possible because of dyeing and printing. Dyeing and printing improve appearance of fabric and add diversity to our dresses through colours and designs. We usually distinguish one fabric from another by its colour, print and texture.

### 11.5.1 Types of Dyes Used for Textiles Finishing

Dyes are used for dyeing and printing of textiles. Dyes are divided into two major categories – natural and synthetic dyes.

- (i) **Natural Dyes** – These were the first dyes known to mankind. These are obtained from natural sources – vegetables, animals or minerals. These are eco-friendly and do not pollute water or land. The residue of these dyes can be safely used as fertilizer in the fields. But the process of dyeing with natural dyes is slow, difficult and expensive. Major natural dyes obtained from plants are turmeric (*haldi*), henna (*mehndi*), madder (*manjishta*) and indigo (*neel*). While tyrian purple and lac dyes are obtained from animal sources. *Khakhi* dye comes from a mineral source.
- (ii) **Synthetic Dyes** – These dyes are prepared synthetically with the help of different chemicals. These differ in their chemical composition and behaviour. Popular classes of synthetic dyes are – direct, basic, acid, disperse, azo, vat and reactive dyes. These dyes cause a lot of pollution and skin allergies etc. Some of these dyes such as azo are very harmful for human health and their use has been banned. Synthetic dyes are very easy to use and have better fastness than natural dyes. These also give a brighter and larger colour range.



## Notes

### 11.5.2 Application of Dyes

In the market, we find it is not only fabrics, which are colourful, but sewing threads, knitting yarns and cords, etc. are also available in various colours. Therefore, the process of dyeing is carried out on textiles at the fibre, yarn or at fabric stage. Different stages at which textiles are dyed include –

- (i) **Fibre Stage** – Though all types of fibres can be dyed at this stage, the method is more popular for dyeing man made fibres. It gives uniform dyeing and it is colourfast. There is a lot of wastage of coloured fibres during subsequent processing.

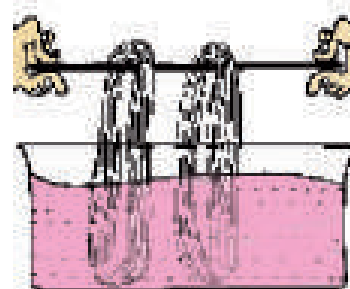


Fig. 11.1

- (ii) **Yarn Stage** – Colour can be applied or rendered (popular term used in textile dyeing) on fibres after spinning into yarns, especially when they have to be sold as such. Knitting yarns and all types of threads – sewing, embroidery, crocheting, etc. are dyed at this stage.

- (iii) **Fabric Stage** – Most of the dyeing in the textile industry is done at this stage, and fabrics are dyed in one solid colour. It gives uniform colouring. Colour matching becomes easier at this stage. This method is also suitable for dyeing blended fabric. Blends are made by mixing two fibres together and then made into a yarn and fabric.

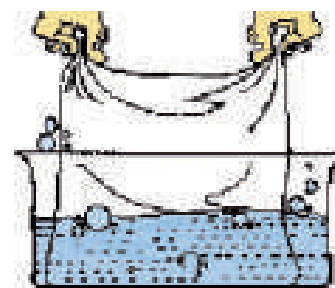


Fig. 11.2

- (iv) **Garment Dyeing** – Sometimes dyeing is done at this stage i.e. after the garments have been stitched. This is also known as piece dyeing. Since a garment is dyed, there is no fabric wastage. But the colour may not be uniform, especially around seams, pleats and gathers. If you have a garment which has been dyed just now, open one pleat or seam. You will find that fabric inside the seam will be lighter or darker depending on the time and exposure of fabric to the dyeing medium.

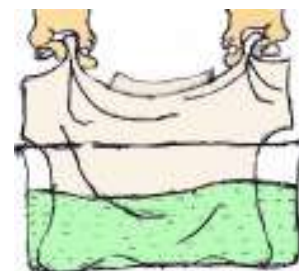


Fig. 11.3

### 11.5.3 Decorative Dyeing

You already know about simple dyeing. When the process of dyeing is carried out in a selective way to get different designs, it is called decorative or resist dyeing. The term resist dyeing is used because in these techniques, some resist materials (threads, yarns or wax) are used on specific areas to prevent them from being dyed. A number of beautiful designs can be created in this manner. The two most popular techniques of

decorative or resist dyeing are –

- (i) Tie and Dye
- (ii) Batik

### (i) Tie and Dye

In tie and dye, threads are used as a resist material to stop the dye from entering the selected areas of the fabric. Tying of the fabric is done according to the design to be made. There are many ways in which you can create designs using tie and dye technique. These are –

- a) **Marbling:** Take the fabric and crumple it to form a ball. Tie it with a thread at different areas, randomly. Then dye the fabric. Open it and dry. The dyed fabric will have a marble effect.

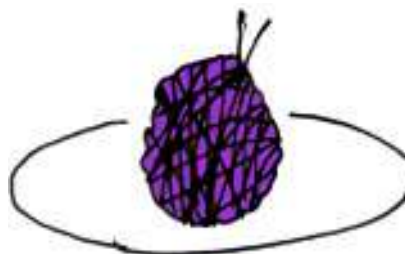


Fig.11.4 : Marbling

- b) **Binding:** Pick up the fabric (*Duptatta*, table cloth or bed sheets) from one point and tie with a thread at intervals and dye it.



Fig.11.5 : Binding

- c) **Knotting :** Put knots on the fabrics wherever desired and dye it.



Fig.11.6: Knotting

- d) **Folding :** Put the fabric flat on a table. Pleat and fold it uniformly in lengthwise direction. Tie it with a yarn at regular intervals, to get widthwise lines after dyeing. For horizontal lines, pleat and fold the fabric widthwise. Roll the fabric from one corner to the diagonally opposite corner and tie at regular intervals to get diagonal lines.



Fig.11.7 Folding



Notes



Notes

- e) **Peg Tying:** You can also use cloth pegs or clamps as resist materials. Fold the fabric and put pegs at regular interval.
- f) **Tritik :** Make a design of your choice on the fabric with running stitch, pull the thread tightly and tie it.

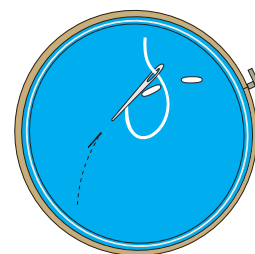


Fig.11.8 Tritik

### Tied and Dyed Fabrics

**Patola** fabrics of Gujarat and **bandhani** of Rajasthan are two famous traditional textiles of India made by tie and dye technique. Both are usually dyed in two or more dyes by resist dyeing techniques. But there is a difference between the stages at which they are tied and dyed.

In Patola the yarn is tied and dyed according to the design before weaving and are then woven to form intricate multi-coloured designs.

On the other hand, woven fabric is tied and dyed to have innumerable dots and lines (*laheria* - wavy pattern) in Bandhni.



### ACTIVITY 11.4

Dipti was happy as she was finally able to buy a saree with beautiful tie and dye design on it. She was happy also because her saree was much cheaper than her friend Nidhi's saree. She proudly exhibited her possession to everybody at home and she also bragged that it is so inexpensive. However her mother asked her to think about the possible reason for her saree being priced so low.

Discuss the following:

- What could be the reasons for Nidhi's saree being more expensive?
- How can you differentiate between a genuine and a fake piece of tie and dye?
- Could the place of production and/or sale outlet also influence the price of Dipti's saree?

### (ii) Batik

Batik is also a method of resist dyeing. Here, wax is used as a resist material to prevent the dye from colouring certain areas. On selected areas of the fabric, a mixture of Bees' wax and paraffin wax is filled with a brush or a block, according to



Fig. 11.9



the design. These areas do not get coloured when dyed giving a patterned effect. The wax is later removed.

### 11.5.4 Printing

Let's us see and understand how printing of fabrics is carried out? Keep two fabrics side by side, one a red coloured fabric and the other a fabric having red print. Observe the difference between the two carefully. Though both the fabrics have red colour, but the dyed fabric is red all over while in the printed one, only certain areas are of red colour. This clearly shows the difference between dyeing and printing. You already know that dyeing is the process of colouring the fabric. Printing is also a process of colouring the fabric but here colour is applied only in selected areas, to create designs which decorate the fabric surface.

The major difference between dyeing and printing is that dyeing is carried out in fibre, yarn or at fabric stage but printing is done only on the fabric surface. This is also known as selective dyeing.

Popular methods or techniques of printing are –

- Blockprinting
- Screenprinting
- Rollerprinting
- Stencilprinting

Block printing and batik are two traditional printing methods. Here, we will learn the details of only one type of printing i.e. Block Printing.

#### Block Printing

Have you ever gone to a post office and observed letters or parcels being stamped. The stamp is first pressed into an ink pad and then onto the letter or parcel. Block printing is similar to this. Here a wooden block, which has a design engraved on it, is pressed into a thick dye paste and then stamped onto the fabric. Do not worry if you do not have a wooden block.

Sanganer in Rajasthan (near Jaipur) is famous for Block Printing.  
Shantinetan in West Bengal is known for Batik.

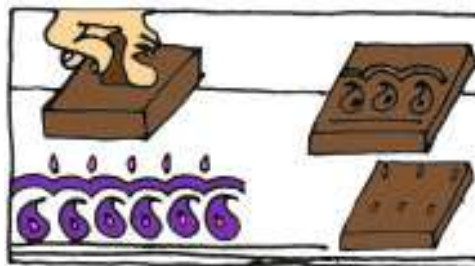


Fig. 11.10

You can follow the same procedure for printing at home using easily available objects in place of a blocks. Take any vegetable like ladies' finger or onion or gourd (*torai*),



Notes



Notes

cut and use it as a block. Even bowl, glasses leaves and flowers can also be used for printing.

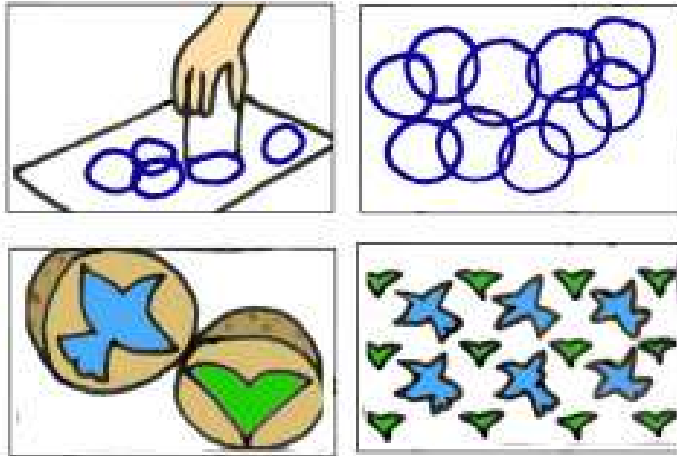


Fig. 11.11



**ACTIVITY 11.4**

To make a block printed article at home, take a few pieces of ladies' finger, onion and a few leaves to be used as blocks. Spread a 10" x 10" fabric on a flat and padded surface. Pour fabric paints in a small flat container. Dip your home made blocks in paint and press them on the fabrics. You can make different designs with the same block by changing its placement.



**INTEXT QUESTIONS 11.3**

1. Fill in the blanks :

- (i) Vegetables and animal dyes are known as \_\_\_\_\_.(natural/artificial)
- (ii) Tyrian purple dye is obtained from \_\_\_\_\_ source. (natural/animal)
- (iii) Fibre dyeing is more popular in \_\_\_\_\_ fibres. (man-made/synthetic)
- (iv) Tie and dye is \_\_\_\_\_ dyeing. (resist/discharge)
- (v) At home fabric can be decorated easily by \_\_\_\_\_ printing. (block/roller)



2. Look at the grid given below, followed by statements. The answer to each statement is in a single word. Fill the word in the grid at its respective number. The first one is done for you.

**CROSS WORDS**

I.	B											V.							
	L																		
	E																		
	A																		
III.	C															IV.			
	H																		
VI.	I																		
	N																		
II.	G																		

Notes

- I. It is a chemical treatment given to a fibre, yarn or fabric to remove yellowing.
- II. The term used for fabrics that come directly from loom.
- III. Also known as wet finishes.
- IV. It makes fabric heavier, stiff and crisp.
- V. It makes cotton fabrics easy to maintain.
- VI. It is one of the tie and dye technique.



**WHAT HAVE YOU LEARNT**

For your convenience, here are the main points of the lesson:-

**Textile Finishes**



**Basic finishes:-**

- i) Scouring
- ii) Bleaching
- iii) Starching
- iv) Calendering

**Special finishes:-**

- i) Pre-shrinking
- ii) Mercerization
- iii) Parchmentisation
- iv) Wash 'n' wear
- v) Dyeing and printing
  - Natural and synthetic dyes
  - Stages of dye application
  - Decorative dyeing
  - Printing

- Meaning
- Importance in relation to textiles
- Classification of finishes on the basis of their-
  - Basic functions
  - Degree of performance
  - Nature (wet and dry)



Notes



**TERMINAL EXERCISE**

1. What is a textile finish? Why is it necessary to apply on fabric?
2. How does a gray fabric differ from a finished fabric?
3. Describe any two basic finishes and their application.
4. The sewing thread Ritu brought had the label mercerized? Give the advantages of 'mercerization' and explain the process of mercerization to Ritu.
5. "Dyeing is finishing with colour". Explain.
6. Differentiate between natural and synthetic dyes.
7. You have just brought a shirt that has a label "Piece dyed". What do you understand from it? What are the other methods of dyeing textiles?
8. Describe batik and block printing.



**ANSWERS TO INTEXT QUESTIONS**

- 11.1** i) Finishes      ii) Gray      iii) Dyeing and printing  
 iv) Wet finish      v) Functional

**11.2**

1.
  - i) True, scouring is washing fabric with soap and chemicals to remove all impurities
  - ii) False, Bleaching has to be done very carefully. It destroys the colour. Strong bleach can damage the fabric to some extent.
  - iii) True, soaking the fabric overnight and drying it causes shrinkage.
  - iv) True, this is due to a permanent finish called Parchmentisation.
  - v) True, mercerization makes cotton smooth, shiny and strong.
2. i) Durable      ii) Sanforised      iii) Special      iv) Colourfast

**11.3**

1.
 

i) Natural dyes	ii) Animal	iii) Man-made
iv) Resist	v) Block.	
2.
 

i) Bleaching	ii) Gray goods	iii) Chemical finish
iv) Starch	v) Wash 'N' Wear	vi) Binding



## 12

# HOUSING

Food, shelter and clothing are our basic needs. Fulfilment of these basic needs is of utmost importance. Our primary needs are food, clothing and shelter. All animals make shelters for their young ones. Human beings call shelter a house. There are many types of houses. Your relations may be staying in a small house in a village. Radha's friend, Shanti lives in a flat and another friend, Rajni lives in a big bungalow in a city. A family starts living in a 'house' and makes it a 'home' by sharing, loving and jointly performing different household activities.



Fig. 12.1

We all need a house to live but now the question arises about its selection. This selection means what features or special qualities to look for in a house. There are many important considerations such as location, surroundings, sanitation etc. You will find answers to these and some other questions in this lesson.



## OBJECTIVES

After studying this lesson, you will be able to:



- describe the functions of a home;
- evaluate the site of your own house for the required features;
- identify different areas in the house for efficient functioning, and
- maintain hygiene inside and outside the house.

## 12.1 FUNCTIONS OF A HOME

In general the words 'Home' and 'House' are used interchangeably. But there is a difference.

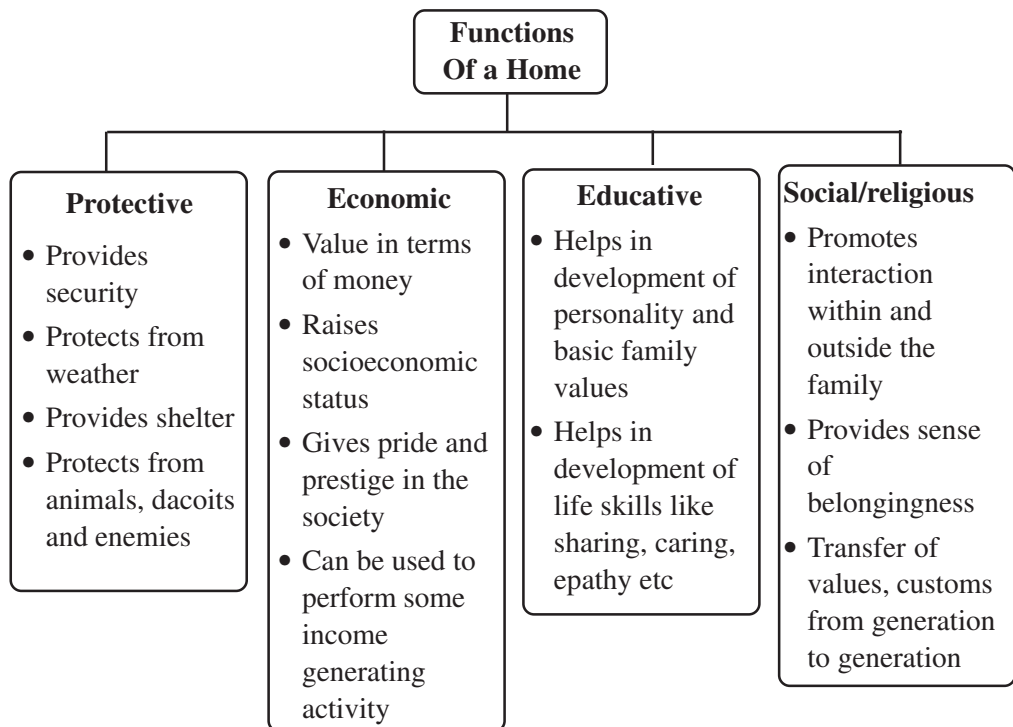


Notes

<p><b>‘House’</b> is physical construction made of brick, sand, cement, stone etc.</p>  <p style="text-align: center;"><b>Fig. 12.2</b></p>	<p>A <b>‘house’</b> becomes <b>‘Home’</b> when all the family members start living there and enjoy all the happiness, love and affection, health, ease, comfort, social and entertainment activities</p>  <p style="text-align: center;"><b>Fig. 12.3</b></p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Now you must have understood that a home is much more than a house. A house has to be converted into a home. We all know the importance of a home. As the saying goes, “East or west home is the best”. It will therefore, be not very difficult to understand the functions of a home.

Home provides not only the shelter but also provides security and belongingness. It provides for physical and emotional needs of all the family members. For children it provides education in basic values like respect for elders, love and affection to others, health, religion, discipline and responsibility. It is a place for loving and celebrating together. Figure 12.4 lists the function of a home.



**Fig. 12.4**

## 12.2 SITE SELECTION FOR A HOUSE

Now you understand that our home meets many of our needs. Do you think that selection or construction of a house is an easy task? No, not at all. It involves a lot of money and cannot be changed often. It is important that certain points are kept in mind so that a wise decision is made.

The place where we construct a house is called a **site**. Site of your house plays an important role in its selection. Do you agree? Let us see how you can select proper site for your house.

- **Neighbourhood:** Attention must be given to the environment and the neighbourhood where the house is to be located. The house should be in the area which is developed in all aspects. A place is called a developed area when it has electricity, roads and drainage laid out. Common facilities like post office, banks, school and markets are available near by.



Fig.12.5

- **Physical features:** While selecting a site, choose a house in an open area. It should not be close to heavy traffic areas. These can affect health and activities due to air and noise pollution. Low lying areas should be avoided due to danger of flooding or water logging. An elevated site provides better view to the house.
- **Soil:** The foundation of the house should be strong for it to stand on. The foundation depends upon the type of soil. The soil should be firm till 2 to 5 feet below the surface for a strong foundation.

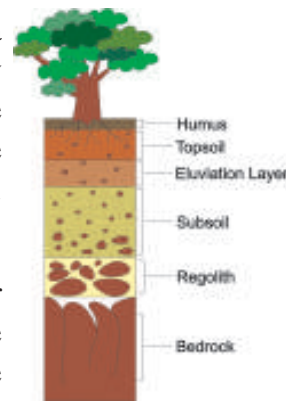


Fig.12.6

While constructing a house, it is important to consider the type of soil in a region. Loose soil creates problem for the house in later years as the house may tilt due to shifting of soil. The sandy and gravel type of soils tend to make the house hot to live in. Rocky surface is good for foundation but does not absorb water and creates problems in laying of drainage pipes.

- **Sanitary requirements:** You must have seen vacant plots filled with garbage. Such a piece of land is not recommended for construction of a house. A house built on such a plot will have uneven soil level and



Fig.12.7



Notes



Notes

drainage problems. The site should be filled with fresh and firm soil and elevated to the level of the road outside.

**Practical convenience:** Adults living in a house have to go to their jobs and children have to go to school or college. To meet our daily needs, we need a market. To travel, transport facilities such as railway station or bus stand is required. Similarly, a family needs practical conveniences such as post office, bank and hospital nearby. These should be within reasonable walking distance of a house.



Fig. 12.8



**ACTIVITY 12.1**

**Evaluate your own house against the required features**

Required features	Existing features of your house (Yes or No)	Can you help to improve (Yes or No) If yes, give suggestions for improvement
Developed area		
Matching social and economic status		
Have open space		
Away from heavy traffic		
Elevated ground		
Proper water supply		
Electricity		
Pucca Roads		
Drainage and sewerage facility		
Proximity to banks		
Proximity to post office		
Proximity to markets.		
Proximity to hospitals		



### 12.3 AREAS IN THE HOUSE

Our home consists of different parts. An ideal home is the one that provides space for all the functions of the family. In order to understand this, we first need to know the functions or activities performed in a home. These are cooking, eating, sleeping, bathing, storing, entertaining, studying etc. To perform these multiple activities, we need adequate space. However, this is not possible for all of us. We can make the best use of the available spaces to make a house functional and be comfortable for all the occupants. Can you think of ways to carry out your household activities smoothly? Let's find out some ways and means to make a home more comfortable and functional.

**The following general points will help you:**

- First of all make a list of all the activities which take place in each room.
- Mark space for every activity.
- Try to combine the activities so that they can be carried out in a common area. For example, dining can be combined with kitchen or drawing room or study can be combined with bedroom.
- Take care not to over crowd the room with too much furniture.
- Try to use multi-purpose furniture like sofa cum bed. At night, the sofa can be pulled out and used as a bed for sleeping. The dining table can be used for studying also. Two or more boxes can be joined together and converted into a settee. These multi purpose furniture items are available in the market.
- Some pieces of furniture can be used as storage units and room dividers. For example, the drawing room can be partitioned with shelves on either side. Books can be placed on the shelf facing the living room, whereas, crockery items can be stored in the shelves on the dining room side.
- Storage can be provided in the furniture itself like bed with boxes, tables and stools with drawers etc.
- The space below the staircase can be converted into a storeroom or converted into a toilet.

Let us study the different types of rooms in a house:

#### **Living room or combined living-dining**

**room:** It is a place to entertain guests, relaxation, reading and entertainment. It should be near the entrance of the building. Sometimes in small houses, it can be combined with dining room, as it adds space and is useful for holding family functions. Furniture is arranged in such a manner that people can talk to each other comfortably.



**Fig.12.9: A living Room**



Notes



Notes

Good lighting is needed for reading as well as other purposes.

**Bedrooms:** Bedrooms should be placed carefully, as we spend 1/3<sup>rd</sup> of our life in sleep and taking rest. They should offer privacy and be free from noise. Rectangular bedrooms are more convenient for accommodating beds, other furniture and storage. Preferably bedroom should be attached to bathroom or toilet. A dressing table can be provided in this room.



Fig.12.10: A

**Bathroom:** A combination of bathing space, water closet and wash area is referred to as a bathroom. Floor should be non slippery and easy to clean. At least one wall of a bathroom should be exposed to outside for proper light and air to avoid dampness and also to offer ventilation.



Fig.12.11: A Bathroom

**Kitchen:** Ideally kitchen should be in the east or north east direction to get direct sunlight during morning. Sunlight has disinfectant properties which kills the germs. A kitchen should have a good drainage system. For sanitation wire-mesh doors should be provided to keep away flies and mosquitoes. Sufficient lighting both during the day time and night should be ensured for doing tasks comfortably. One wall of kitchen must be on exterior side of the house for providing good light and air. Exhaust fan can be installed to take away smoke. By all means cross ventilation has to be provided here. Sufficient storage space above and below the work counter facilitates smooth functioning of the work. The kitchen should have light colours on walls which reflect maximum light. Traditionally Indian women work on the floor. However, these days standing kitchens are becoming the norm in cities.



Fig.12.12 Sitting kitchen

By carefully planning the rooms and following the above tips, our family can enjoy a comfortable house.



### ACTIVITY 12.2

You want to create space for studying in a two room house. Here one room is used mainly for sleeping and the other for entertaining guests and sitting. Present your plan giving adequate reasons. Use the following table for your answers and give reasons.

Rooms/areas	Used for any other activities	Problems faced	Your suggestions for study area
Sitting room			
Sleeping room			



### INTEXT QUESTIONS 12.1

1. Write the type of function (protective, economic, social/religious and educative) against the activities given below

	Activity	Functions
a.	Celebrating Diwali	
b.	Keeping paying guest	
c.	Caring of children and old people	
d.	Taking tuitions	
e.	Learning to respect others and be responsible	
f.	Having meals together with the family	

2. State which aspect of site selection relates to the following situation. One example is given below.

	Situation	Site features
E.g.	Open space provides children with place to play.	Physical features
a.	House in an area having proper water supply, electricity, roads and drainage facility.	



Notes



Notes

b.	Houses built on loose soil have poor foundations.	
c.	Plots filled with garbage are unhygienic for building houses.	
d.	The child has to start very early for school.	
e.	The elevated soil with slopes drains away water soon.	
f.	House in a quiet area.	

**3. Match the column A and column B. Write the correct number of response ( i, ii, etc) from column B. In the Answer box against its match.**

	Column A		Column B	Answer
a.	Ideal home	i	Entertainment	
b.	Small rooms	ii	Privacy	
c.	Drawing room	iii	Exhaust fan	
d.	Bathroom	iv	Provides space for all the functions	
		v	Multipurpose furniture	

**4. You want to make your room look more spacious. Given below are two options in one set. Choose the one which is the most suitable.**

- a. Heavy furniture or Light furniture
- b. Single use furniture or Multi use furniture
- c. Combine kitchen and dining room or Kitchen and sitting room
- d. Light colours on walls or Dark colours on walls

## 12.4 MAINTAINING HYGIENE INSIDE AND OUTSIDE THE HOUSE

Observe your home for the following aspects

Does it get proper sunlight? Is it well ventilated? Is it kept clean, both in and around? Is it exposed to loud noise? Does the area have proper drainage, sewerage and garbage management system?

Let us examine the aspects which are important in maintaining hygiene for a healthy living. Three aspects need special care. These are:

- Light

- Ventilation
- Sanitation

Let us discuss each one of these in detail.

### 12.4.1 Light

Proper lighting is important to perform various activities in the house. It also enhances the beauty of the house, particularly during the evening hours. Every house has two types of lighting:

- Natural Lighting:** The light that we receive from natural sources i.e. the sun.
- Artificial Lighting:** The light that we receive from artificial sources such as tube light, bulbs.

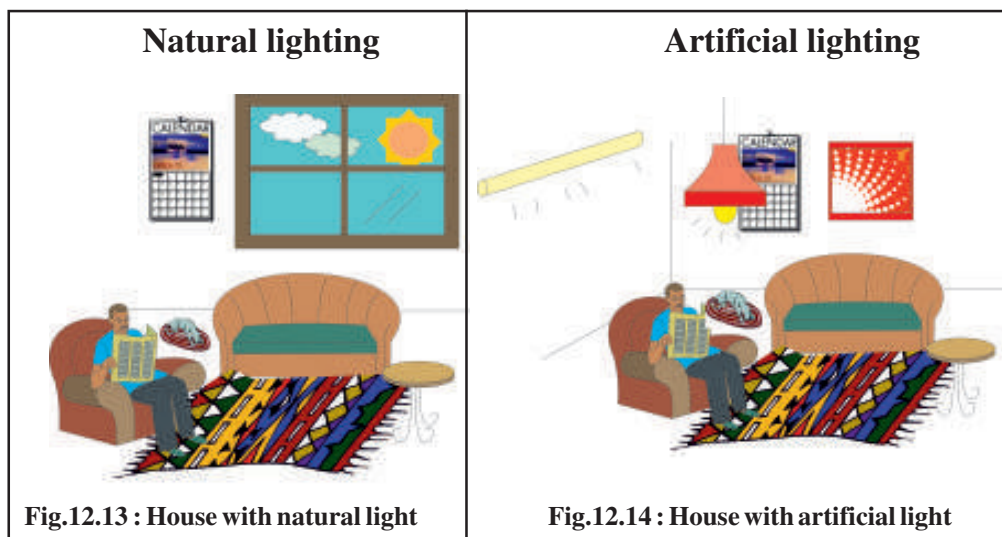


Fig.12.13 : House with natural light

Fig.12.14 : House with artificial light

When you check the lighting in your home, you must make sure that most of the rooms get some sunlight during the day. Can you say why? The answer to this question lies in your science lessons. Sunlight is important for all the rooms but more specially for kitchen and bathrooms where water is used frequently. If sunlight does not enter into these areas they will remain dark and damp. It will encourage the entry of mosquitoes and cockroaches. It is not very hygienic to stay in such a house. This increases the chances of infections and fungal diseases. You must have observed that even plants when placed in a darkroom soon lose their luster, droop and wither.

Sometimes it is not possible to have natural light in each and every corner of the house. So we use artificial light. In the evening, we need artificial lighting. When artificial light has to be used, make sure that it is not too strong and that it falls on the work that you are doing and not on your eyes. The glare from the light falling directly on your eyes will make it difficult for you to see. Your eyes may also ache and start watering. You should be careful that for studying, there should be proper lighting, otherwise, your eyes will get tired soon.





Notes

### 12.4.2 Ventilation

You know that houses have doors, windows, ventilators and exhaust fans. These are made to allow fresh air inside the house and remove stale air. Fresh air is essential for healthy living. This is the reason why we must ensure that the house that we live in has proper ventilation. It can be done through natural or artificial sources.

*Ventilation means to circulate fresh air and driving out foul air in order to freshen up the interiors of a house.*

Windows of the rooms should be kept open. Even in winters, when it is very cold, at least one window of the room should be kept open so that fresh air circulates freely. The air circulation in rooms should be sufficient to remove smoke, bad smells, moisture and fumes that offend and also control cold drafts in winter. Cross ventilation is desirable and can be achieved by placing windows on two different sides of the house or by having door and window across from each other in a room.

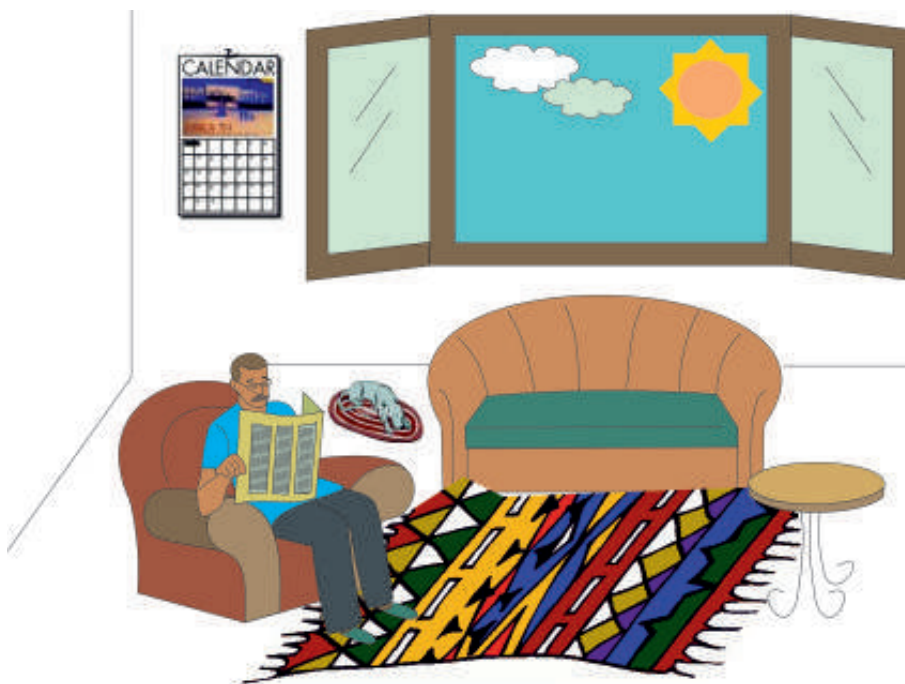


Fig.12.15

You must remember that the openings at the floor level help to bring in fresh air and the openings near the ceilings drive out stale air.

### 12.4.3 Sanitation:

Can you say why it is important to keep our homes and surroundings clean? Clean surroundings keep insects and germs away from us. In order to prevent the spread



Notes

of diseases and to keep our environment healthy there are many activities which are to be performed and many facilities which are to be created for maintaining sanitation. The most important ones are:

- maintaining cleanliness,
- removal of garbage and
- disposal of excreta.

Let us discuss each one of these in detail.

### (a) Maintaining cleanliness:

Dust is a great enemy of our health, as most of the diseases are spread by it. Cleaning is basic to maintaining hygiene but it is a heavy household task compared to others. It involves physical labour and a lot of time has to be spent in keeping the house clean and comfortable for the family. Encourage your family members to place items at their respective places to maintain cleanliness.

Cleaning is of many types. You must have observed your house being cleaned everyday. The store is cleaned only weekly or may be monthly. The entire house is thoroughly cleaned only before Diwali or some major festival or special occasion like a marriage in the family or a birth celebration. So we can say that cleaning is a daily, weekly and seasonal activity.

### Types of cleaning

Let us find out about the types of cleaning and the activities to be performed under these.

#### Daily cleaning

- Sweeping and mopping of floors
- Dusting surfaces
- Cleaning of rugs and carpets
- Making beds in the morning
- Tidying up objects in every room



Fig.12.16

#### Weekly cleaning

- Thorough cleaning of different surface areas and materials like bathrooms, toilets and wash basins
- Removing cobwebs
- Cleaning shelves of kitchens



Notes

- Cleaning door handles and other fittings
- Polishing the wooden surfaces and other areas
- Cleaning mirrors and pictures

**Spring or seasonal cleaning**

- Airing mattresses, cushions, pillow, rugs and carpets in sunlight
- Washing curtains
- Thorough cleaning of rooms after removing all furniture
- Cleaning the store room
- Cleaning and polishing of the wood work and getting any repairs done



Fig.12.17

**General points to be considered for cleaning rooms**

- Thorough knowledge of the methods of cleaning go a long way in simplifying heavy work.
- One way to keep a house clean is to prevent dirt getting into the house by using special pair of footwear for indoor use and foot mats. It prevents outside dirt getting into the house.
- Fine wire mesh door and windows block entry of dust and insects.
- In daily cleaning : start from inner most part of the house and move towards cleaning outward areas. All beds should be made before starting cleaning. Open doors and windows to allow fresh air to enter. Sweep the rooms with a soft broom. Sweeping should be followed by dusting of furniture. Brush carpets or rugs. Finish by mopping floors. A disinfectant like phenyl may be added to the water for mopping the floor.

Ensure regular cleaning using proper methods to simplify work at home and work place to save time and energy

**Cleaning of different surfaces and materials:**  
 The house has different surfaces like walls, mirrors, pictures, tiles, toilet floors. There are many items to be cleaned such as plastic mugs, buckets and metal objects. In order to clean these, different materials are required.





Notes

Surfaces	Materials required
Floors	Broom, brushes, soap or detergent, water, kerosene oil, lime and phenyl
Ceramic tiles, kitchen and bathroom tiles	Soap or detergent, commercial tile cleaners, vinegar, mild hydrochloric acid
Plastic mug, buckets, chairs, taps	Luke warm soap or detergent solution, scrubber, vinegar, kerosene ( Avoid hard cleaners) and soda
Glass/mirror windows glass/mirror	Moist newspaper pad, vinegar and commercial glass cleaner
Metal taps, brass taps	Lemon, vinegar, tamarind, hot soapy water and salt
Wood surfaces	Soft cloth, sponge wrung out of a mild soap solution and vinegar



### INTEXT QUESTIONS 12.2

- Given below in the box is a jumbled list of activities related to cleaning. Place each under the category of daily, weekly or seasonal.

Dusting, cleaning before Diwali, sweeping of floor, removing cobwebs, polishing of furniture, cleaning of metal objects, making beds, washing curtains, cleaning bathrooms, cleaning of tiles in toilets, cleaning of stores, cleaning carpets with a brush, tidying up rooms, cleaning drains, mopping of floor, cleaning of washbasins.

Daily activities	Weekly activities	Seasonal activities

- (b) **Removal of garbage:** The garbage from the house, dust collected through sweeping and waste materials like fruit and vegetable peels from the kitchen should be put in a covered dust bin. This dust bin should be emptied into a packet everyday and this packet of waste should be disposed off in the public garbage bin in the street. This method of waste disposal works very effectively and is sanitary too. Household waste generally has two kinds of waste



Notes

material. Kitchen waste that is vegetables and fruit peels are bio-degradable and other household waste like polythene bags and plastic bottles are non-bio degradable. These should be segregated and disposed off separately. In rural areas, a pit should be dug for disposal of bio-degradable household garbage. It should be covered with soil. After some time, the garbage will turn into manure which can be used in the kitchen garden.



Fig.12.18

- (c) **Disposal of waste water:** There is generally a fair amount of waste water generated from our home. Waste water from the bathroom, washing place and kitchen should be led by a drainage pipe to a kitchen garden or a soakage pit. We should never let waste water stagnate near the house. There are some localities where drainage system has not been provided. This is also true in rural areas. Therefore, soakage pits are the best alternative for disposing off waste water.
- (d) **Disposal of Human excreta – sanitary latrines:** Hygienic disposal of human waste is necessary to prevent spreading of diseases. It is important that all people use proper latrines. Otherwise, diseases would spread through flies sitting on food, drinking polluted water, eating contaminated raw fruits and vegetables. Germs can enter our body even when we walk barefoot.

Let us look now at some of the ways of safe disposal of human excreta.

- a. **Water Closet:** In a majority of large towns, human excreta is removed through the water carriage system. In this, along with the household waste water, the faeces and urine are carried away by a flush of water through a system of drains and sewers. A water closet is a sanitary installation for reception of the human excreta. It is connected to a sewer through a pipe.



Fig.12.19: A water closet with a raised seat



Fig.12.20: A squatting pan water closet

Water closet system is the most sanitary method for removal of human excreta

### Soakage Pit

- These are very important for areas where there is no drainage system.
- They are cheap and easy to construct.
- A suitable soakage pit is about 2 metres deep, 1 meter wide and long enough to deal with the household waste water. The average length is 2-3 meters.
- Fill one third of the pit with coarse stones, preferably over burnt bricks of  $\frac{3}{4}$  size. The middle portion is filled with small stones and pebbles and the upper most portion with sand.
- The soakage pit may be covered with earth and grass.
- The waste water from the house is led through a drainage pipe to the soakage pit. The waste gradually percolates and soaks away into the ground from the pit.
- Soakage pits should not be constructed near a well. Can you think why? Yes, the water in the well may get contaminated.

However, this system does not work unless there is plenty of water for the purpose. Also, it is expensive to construct.

As a result, in most of the villages and many of the towns in India, we find that the closets and sewerage system are not there. In such circumstances, pit latrines or the bore latrines may be constructed.

- b. Septic tanks:** As you know, sewerage system is the ideal solution for the disposal of human and other wastes, but it costs too much. It requires a lot of water. Septic tank is another alternative. These can be seen in semi urban areas or localities where sewerage system has still not been laid. This method basically involves constructions of concrete tank or pits. Household drains are connected to these pits.

You must have observed the logo of “Sulabh Shauchalaya”. These toilets are based upon the principle of septic tanks.

### Advantages of septic tanks

- Hygienic
- Low cost and easy to construct than the water closet system
- Does not pollute surface or ground water
- Free from foul smell



Notes



## Notes

- Maintenance is easy and cost low
  - Needs only 1.5 to 2 liters of water for flushing as compared to 13-14 lit. of water in a conventional flush toilet
  - Does not require cleaning of pits
  - The sludge from the pits is a good manure
  - Gases are dispersed into the soil
  - Eliminates mosquitoes, insects and fly breeding
- c. **Pit latrine:** A pit is dug to receive human excreta. The pit should be more than 3 metres deep. This is to prevent flies from sitting on it as flies rarely live in holes as deep as this. The soil should be sandy and allow the liquid portion of the excreta to drain away. Otherwise, the pit will fill up quickly. Water should be added daily to help the faeces to flow down and get decomposed. This is ideal only in case of temporary use for few days.

There can be a concrete platform around the opening of the hole and raised foot stands. The opening of the hole should be covered with a lid. This will discourage flies attracted by smell and also prevent foul smell from spreading but this system is not very hygienic as it allows the discharge to pollute the ground water.



## ACTIVITY 12.3

1. Identify the type of waste disposal method your family uses in your home (Covered bins or uncovered bins). Now analyse the problems faced by you with existing waste disposal method for solid waste inside and outside your home. Now collect the following information:
  - a. Inside home
    - i. How is waste collected?
    - ii. How often are the bins cleaned?
    - iii. Is there a foul smell from the waste?
    - iv. Are the drains blocked?
  - b. Outside home
    - i. Is there a heap of waste or garbage in the street?
    - ii. Is there foul smell from waste spreads?
    - iii. Are animals gathering around the waste?
    - iv. Do drains get blocked?



Notes

- v. How far are the municipality garbage bins located?
- vi. Is the number of bins adequate to the amount of garbage generated?
- vii. How often are the garbage bins emptied?
- viii. Are the garbage bins covered?

2. Discuss with friends of locality or in the study centre the following:

How satisfactory is the disposal of waste inside and outside the house? What can be done and how to sort out the problems/ improve the present status?

Individual level	Community level	Panchayat/ MCD level



### INTEXT QUESTIONS 12.3

1. State whether the statements given below are true or false.
  - a. Sunlight acts as a mild disinfectant
  - b. Indoor plants turn yellow when placed in brightly lit rooms.
  - c. People living in dark and dingy rooms are more prone to falling sick.
  - d. Circulation of air removes stale air and brings in fresh air.
  - e. ventilators provide light and fresh air in rooms.
2. Why is cross ventilation important for maintaining a healthy environment inside the house? Suggest ways to ensure cross ventilation in a house.
3. Tick mark (✓) the most appropriate answer:
  - a. Soakage pits provide a hygienic method for the disposal of \_\_\_\_\_.
    - i. garbage
    - ii. waste water
    - iii. human excreta
    - iv. all of these
  - b. Disposal of human excreta through water carriage system is generally not found in rural areas because it \_\_\_\_\_.
    - i. requires plenty of water

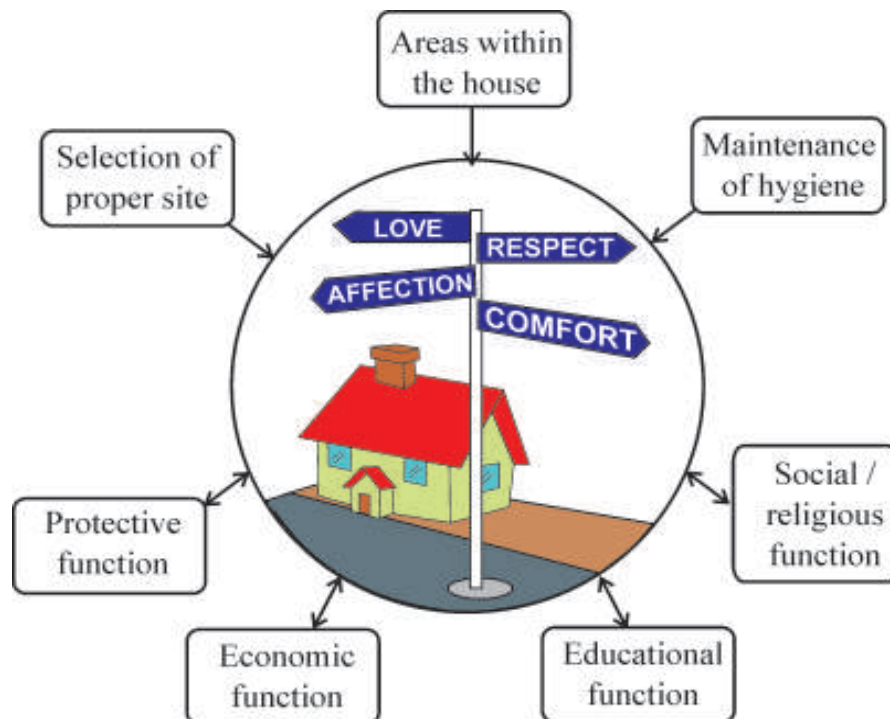


**Notes**

- ii. is expensive to construct
  - iii. requires a common system of removal
  - iv. all the above
- c. The purpose of ventilation is \_\_\_\_\_.
- i. to give ample light
  - ii. to circulate the fresh air
  - iii. to bring in ample light and air
  - iv. none of these
- d. The ideal method of disposal of human excreta at community level is \_\_\_\_\_.
- i. water closet
  - ii. pit latrine
  - iii. septic tank
  - iv. any of these
- e. An ideal method of garbage disposal in a village is construction of a \_\_\_\_\_.
- i. garbage pit
  - ii. placement of garbage bins
  - iii. throwing garbage on the sides of sheets
  - iv. none of the above



**WHAT YOU HAVE LEARNT**





### TERMINAL EXERCISE

1. State any three functions performed by your home.
2. State any four important points to be considered while selecting a house and tell why you consider these important.
3. Name two sources of lighting in the house and state why each one is important.
4. State any three advantages of ventilation.
5. What are the effects of poor lighting on your health?
6. Which method do you suggest is ideal for the disposal of human excreta and waste water and why?
7. Name two cleaning agents you will use to clean window glass panes?
8. Suggest two ways you will adopt to make a one room house appear spacious.
9. Write any three essential planning tips for designing a good kitchen.
10. List any four activities which are performed in a kitchen.
11. Think of the situation given below and answer the questions.

The festival of Diwali is approaching and your mother is not keeping well. You want to help your mother in cleaning and decorating your home for the festival.

- a. List the activities that need to be performed for cleaning and decorating your home.
- b. Sequence these activities in an order.
- c. Assign specific activities and tasks to different family members. What criteria will you keep in mind while doing this?



### ANSWER TO INTEXT QUESTIONS

#### 12.1

1.
  - a. Religious
  - b. Economic
  - c. Protective
  - d. Economic
  - e. Social
  - f. Social



Notes



**Notes**

2.
  - a. Neighbourhood
  - b. Soil conditions
  - c. Sanitary requirements
  - d. Practical convenience
  - e. Physical features
  - f. Practical convenience
3.
  - iv a.
  - v b.
  - i c.
  - i d.
4. Refer to the text.

**12.2**

1.

Daily activities	Weekly activities	Seasonal activities
Dusting	Removing cobwebs	Cleaning before Diwali
Sweeping	Cleaning of metal objects	Washing curtains
Making beds	Cleaning of toilet tiles	Cleaning of store
Cleaning bathroom	Cleaning of washbasin	
Tidying up rooms	Polishing furniture	
Cleaning carpets with brush		
Cleaning drains		

**12.3**

1.
  - a. True
  - b. False
  - c. True
  - d. True
  - e. True
2. It provides good circulation of air in the room.
  - Cross ventilation is possible when a window opens on to each of two different sides of the house and direct flow of air can take place between the two openings.
  - By placement of door and windows across from each other.
3.
  - a. i
  - b. ii
  - c. ii
  - d. i
  - e. i





## 13

## SAFETY IN THE HOME

I had to board a train for my aunt's house, I got up early to pack some food for the journey. I burnt my hand while making tea, as the cloth I was using to lift the pan from the stove caught fire. I was still reeling in pain when I cut my finger while chopping vegetables. Luckily the cut was not too deep so the bleeding stopped after I put a band aid on it. I was already running short of time, I ran to have a bath but only to slip in the bathroom.

With my head and knees hurting from the fall, my thumb throbbing with pain, I wobbled to take a rickshaw for the station. For once, I was relieved to know the train was an hour late.

Sitting in the train I was wondering, could I have avoided these accidents? Have you also had accidents like these at your home? Can we make our homes safe and prevent accidents? Let us read this lesson and find out ways to make our homes accident proof our homes and also learn how to deal with these accidents in case they happen.



### OBJECTIVES

After reading this lesson you will be able to:

- assess the need for ensuring safety at home;
- critically evaluate your home for unsafe zones;
- adopt safety measures to make your home safe for all family members;
- suggest first aid measures for specific accidents and
- recognize the importance of tying bandages.

### 13.1 NEED FOR SAFETY AT HOME

What is the need for making our homes safe?

Accidents are major cause of death especially among elderly and children. 80% of the



**Notes**

accidents occur at home. Many a times, we slip or trip but somehow get saved. These are near misses or warning signs of potential accident sites which need attention to prevent the accidents. For example, there may be a loose wire on which you trip. So what do you do? Yes, pick up the loose wire and tape it against the wall; so that nobody falls over it.

Are there chances of this boy falling off the roof? Can this accident be fatal? Can this accident be avoided? Yes, by putting a high boundary around the roof and by adult supervision. So we need to make our homes accident- proof in order to prevent accidents which can either be fatal or leave a person temporarily or permanently disabled.

Accidents can also affect a person’s psychological, social and cognitive development. We can prevent most of the injuries by creating a safe environment at home. Besides, living in a safe house can decrease constant fear from injuries of accidents.

Now, do you realize how important it is to make our homes accident proof?



**Fig 13.1**

**13.2 COMMON ACCIDENTS AT HOME**

Accidents are usually unpredictable and unintended. Carelessness about basic safety norms in the house can take just a second to cause an accident. Even one unsafe area is enough to cause an accident in your home. Good news is that most accidents can be avoided. It is important to know what kind of accidents can occur in our homes.



**ACTIVITY 13.1**

Recall any five situations which led to an accident in your home.

1. You slipped because \_\_\_\_\_
2. You fell \_\_\_\_\_
3. You burnt yourself \_\_\_\_\_
4. You cut yourself \_\_\_\_\_
5. You suffered an electric shock \_\_\_\_\_
6. Any other accident \_\_\_\_\_



Notes

Besides these accidents, you or someone you know may have been a victim of poisoning, bee sting, snake bite, choking or suffocation.

Now let us examine the cause of each of these accidents.

### 13.2.1 Falls: Watch your step!!

Ayushi was all alone in the house and wanted to eat some ladoos kept in the topmost shelf of the kitchen. She put a stool on a table and stood on it. The moment she picked up the jar, she lost her balance and fell down. Do you know that nearly half of the accidents at home are caused by falls? What can we do to eliminate these accidents? Yes, by critically examining our homes and identifying potential danger zones as well as behaviour that can lead to accidents.



#### ACTIVITY 13.2

You can suffer from falls in the following conditions. Choose either of the two given options (1 and 2) to know the cause of falls. Then evaluate your home, do you think it is safe, if not, give recommendations for improvement. Give one mark for each point.

S.No.	Incidence	Option 1	Option 2	Your home status?
1.	Floor is	clear	cluttered with things	
2.	Window	has a grill	Does not have a grill	
3.	Ladder used for climbing is	steady	wobbly	
4.	Roof has	Boundary wall/ railing	no boundary wall/ no railing	
5.	Stairs are	well lit	dimly lit	
6.	The floor is	dry	soapy/wet /slippery	

Recommendation for improvements:

.....

.....

.....

.....

.....

.....



## Notes

### 13.2.2 Cuts

Four year old Bittoo was playing with a toy truck. Suddenly his mother heard him cry. She ran to him and found that his hand was bleeding. Bittoo got a cut on his palm. His mother observed the toy truck had a sharp edge.

#### How could this accident be avoided?

Yes, by removing hazardous items like knife and glass from the child's reach, choosing toys carefully. Also one should avoid leaving children unsupervised.

To prevent such accidents, let us examine your home for items which can lead to cuts-

- Sharp corners of any furniture.
- Cracked or chipped glasses or cups.
- Knives, stored facing upwards.
- Blades or scissors lying within the reach of children.
- Cutting tin without a tin cutter.

If the answers to all these conditions are YES, then you need to be worried / alarmed- you may soon suffer a cut.

Make sure you pay attention to these items to avoid cuts.

Broken glasses are common occurrence in our homes. It is a challenge to pick up all the pieces and dispose them off safely. Some effective methods of picking up broken glass pieces are using

- wet mop
- sticking tape or plasticine
- kneaded dough

to collect all the glass pieces as they get stuck to their surface. Thereafter, they should be wrapped in several layers of newspaper before being thrown in a bin.



#### INTEXT QUESTIONS 13.1

Answer the following questions along with reasons.

1. Kartik cut his hand while chopping vegetables. What could be the possible reasons? Write down three such reasons.
2. Suggest two safe methods of picking up broken pieces of glass on the kitchen floor.
3. Which is a safer way to open a window with its handles or by pushing the glass?

4. Your younger brother wants to sharpen his pencil. What will you give him? A sharpener or a blade? Why?

### 13.2.3 Burns and Scalds

Fatima was cooking lunch for the family and did not realize that the edge of her sari pallu was on fire, until her daughter brought it to her notice. Fatima had the presence of mind not to run out. She quickly took a large plate and doused the burning sari. A major calamity was averted.

Some examples of common burn accidents that can occur at home are given below.

1. Hot tea gets spilt on someone.
2. Hot oil splashes while frying.
3. Cloth used to remove utensils from stove, catches fire.
4. Child plays with a matchbox.
5. Kerosene oil being filled while the oil stove is lit.
6. Cooking oil kept near the gas stove.
7. Lighted cigarettes and hot ashes thrown carelessly on garbage.
8. Inflammable liquids like acids, chemicals carelessly stored.
9. Worn out wires that may lead to short circuit and overheating.
10. Two or more appliances used in one socket.
11. Open lamps or burning candles kept near the windows curtains.
12. Cooking gas cylinder leaks.



### INTEXT QUESTIONS 13.2

Fill in the blanks using either of the given clues in the bracket, to suggest ways to prevent fires. You can check the correct answers later.

1. Keep the matchbox and chemicals \_\_\_\_\_ reach of children. ( within/ out of )
2. Before sleeping \_\_\_\_\_ burning candle or lighted fire. ( extinguish/ continue )
3. Store inflammable liquids in \_\_\_\_\_ containers. ( labelled/ unlabelled )
4. Put two electric appliances in \_\_\_\_\_ socket/s. ( two /one )



Notes



### Notes

5. All worn out wires and cables should be \_\_\_\_\_  
(replaced/repaired)
6. Wear \_\_\_\_\_ clothes in the kitchen. (loose/ well fitted)
7. Knob on the gas cylinder should be \_\_\_\_\_ at night. (put off/ kept on)
8. Buy only \_\_\_\_\_ appliances and gas pipes. (branded /ISI certified)

### What do you do, in case of a cooking gas cylinder (LPG, liquefied petroleum gas) leaks?

Yes you —

- open the windows.
- evacuate the house, especially children and the elderly.
- never ignite any match stick or light any type of fire.
- do not turn on any electrical switch. (A tiny spark from the switch is enough to ignite a fire)
- take out the leaking cylinder and put it in open air.
- call the fire brigade or the emergency helpline phone number of the gas supplier.

### What do you do in case of fire?

- Put out the flame with sand or water. Do not use water to put off an electrical fire.
- Never run if your clothes are on fire. It will only fan the fire.
- To douse your clothes on fire, roll on the floor. Better still, wrap yourself with a woollen blanket and roll on the floor.
- Tie a wet cloth around your face.
- Crawl along the floor to escape. Remember the air at the ground level is cleaner as hot air and smoke rise upwards



### ACTIVITY 13.3

- a. Survey the market and get detailed information for fire extinguishers and choose which can be easily fitted in your kitchen and operated by any one of you.
- b. Visit a fire station and learn safety tips from firemen.



### INTEXT QUESTION 13.3

1. A fire broke out in your neighborhood. You have volunteered to help the firemen. What would you use or do? Choose the correct out of the two options given in the bracket.
  - a. Throw (sand/ water) on open flame caused by electricity.
  - b. Throw (Cold water/ hot water) on the fire.
  - c. Use (single Ladder/ multiple ladder) to rescue people.
  - d. To come out from building (crawl on floor/ run out).
  - e. Use (wet/ dry handkerchief) to breathe.
  - f. (Open/ close) all windows.
  - g. Use (Blanket/ bed sheet) to douse the flames from a victim's clothing.
2. Choose the correct answer from the following options given below:
  - a. Careless handling of which liquid can cause a fire?
    - i Petrol
    - ii Aerated drinks
    - iii Hot water
  - b. Do not put more than one electrical appliances in one electric socket because
    - i it leads to overheating of wires
    - ii it does not look nice
    - iii it entangles the wires
  - c. Wearing clothes made of which fabric is most dangerous in the kitchen?
    - i Cotton
    - ii Silk
    - iii Nylon
  - d. When a fire breaks out in the house , clean air is at the
    - i ceiling level
    - ii ground level
    - iii window level
  - e. In case you smell cylinder gas leaking in the kitchen, what should you do?
    - i Light a matchstick
    - ii Switch on a light
    - iii Open the windows



Notes



## Notes

### 13.2.4 Poisoning

Ruby was nearly five years old. She went to a cupboard and found a small packet which seemed to contain sweets. She opened the packet. She was about to put it in her mouth when her mother snatched it from her hand. That was a packet of Naphthalene balls. Many children are not so lucky!

Poisons are substances when ingested can be dangerous and even cause death.

All chemicals like household cleaners, detergents, insecticides, pesticides, fuels like kerosene, expired medicines can cause poisoning.

Food poisoning can also occur when stale and contaminated food, water or milk are consumed. Over spraying of pesticides on fruits and vegetables can make them poisonous.

Let us examine how to prevent poisoning at home.

1. Label all medicines or bottles.
2. Read all the labels carefully, so that you know what you are consuming.
3. Keep chemicals preferably in the containers labelled originally.
4. Do not store them with food items or in food containers.
5. Keep chemicals locked, away from the kitchen and out of children's reach.
6. Before consuming, wash all fruits and vegetables thoroughly.
7. Check the expiry date and discard all the expired medicines.



Fig 13.2



#### ACTIVITY 13.4

Find things in your house which may be poisonous. Label their containers and lock them up.





### INTEXT QUESTIONS 13.4

Identify the wrong habits given below and give appropriate suggestions to correct them.

- a. Kerosene oil is stored in a used vegetable oil container.

\_\_\_\_\_

- b. Medicines are kept in the lower shelves of a cupboard.

\_\_\_\_\_

- c. Cupboard where pesticides are kept is left open.

\_\_\_\_\_



Notes

### 13.2.5 Bites and Stings

It was a very pleasant day and our family decided to go for a picnic. The children Rubina and Arshiya were happy to see a big mango tree and started throwing stones at the mangoes. One stone accidentally hit the beehive and a swarm of bees stung them. They both had to be hospitalized. The stings of bees and wasps can cause a lot of pain and swelling. In extreme cases the victim may even suffer from shock. You must be aware that dog and monkey bites can cause rabies and should not be ignored. Similarly, snake bite can be fatal, if not treated immediately. Therefore it is advisable to consult a doctor as soon as possible.

### 13.2.6 Electrocutation and Shocks

Joseph was enjoying dancing to the music. Accidentally his foot touched the wire and the naked wires came off the socket. Remembering how his father fixed it; he tried to insert the naked wire into the socket; only to get an electric shock. After a while his mother found him in an unconscious state and rushed him to the doctor.

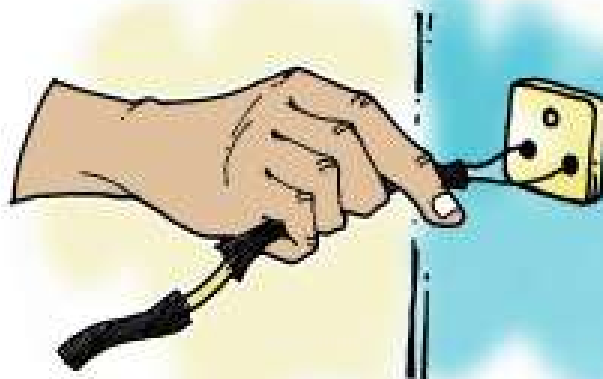


Fig 13.3



## Notes

Luckily he could be saved due to timely help. Electricity if used improperly can be very dangerous for both life and property.

How can we prevent electric shock at home?

### Safe use of electricity at home

- Do not attach too many appliances on a single socket. It will overheat the wires and cause short circuit.
- Do not touch any electric switch or appliance with wet hands as the water is a good conductor of electricity and will cause a shock.
- Wires should not pass through the door-frames as constant opening and closing of doors will damage the wire covering.
- Never remove plugs from the socket by pulling the wire. Pull out the plug itself.
- Old and worn-out wiring should be changed promptly.
- All the electrical appliances should have earth connection. For this three pin plug should be used. Earthing makes appliances relatively safer to use.
- Buy ISI marked electrical appliances only.
- Train children in the correct use and handling of electrical appliances.
- Get electrical repairs done from a qualified electrician.
- Do not attempt repairs on your own.
- No electric wire should cross any heating device.
- Electrical sockets should not be directly exposed to water to prevent electrocution.
- Cover all unused sockets with safety plugs or sticking tapes.
- Wear rubber slippers while handling electrical appliances.
- Keep electrical appliances on a wooden board as wood is a bad conductor of electricity.



### INTEXT QUESTION 13.5

Some situations have been presented below:

Each has one right and one wrong answer (underlined). Choose the right answer from the options given below.

#### Rahul got electric shock because of following reasons:

- a. He was using too many electric appliances on one socket/ only one appliance on one socket.



Notes

- b. He touched the electric heater with wet/dry hands.
- c. He pulled the radio with its wire/plug.
- d. Wires of the television were frayed/new.
- e. He used a 2 pin plug/ 3 pin plugs.
- f. He was wearing rubber slippers or was barefoot while handling electrical appliances.
- g. Appliance was kept on a wooden plank/marble counter.

**At home, never ignore the following to prevent electric fires:**

- Fuse bows off
- Lights flicker
- Wire turns black
- Smell of plastic burning

### 13.2.7 Suffocation and Choking

Little Ginni popped a button in her mouth and almost choked. Then one day she tried to wear the colourful polythene bag as a cap and almost suffocated. These are every day happenings. To prevent accidents related to choking and suffocation among children, following points must be kept in mind :

- Adult supervision is a must.
- Buy toys which do not have very small detachable parts.
- Toys with small parts should not be given to young children.
- Keep polythene bags out of the reach of children.

Another reasons for suffocation and choking amongst children and adults could be fumes from LPG cylinder, motor exhausts, generators, charcoal stove, soft coal and wood produced carbon monoxide, which can cause death due to suffocation.



#### INTEXT QUESTIONS 13.6

Fill in the blanks with a suitable word:

- a. Burning of soft coal or wood can produce \_\_\_\_\_ (carbon monoxide / oxygen) which can cause death.
- b. \_\_\_\_\_ (plastic / cloth) bags are the most common cause of suffocation in infants.



Notes

- c. A child can choke if swallows \_\_\_\_\_ (big / small) objects.
- d. Children should be \_\_\_\_\_ (unattended / supervised) while they play.

In an unfortunate event of any accident at home, professional medical help may not be available right away. So what should you do? Can you do something to prevent the victim's condition from worsening? Yes you can!

You burnt your hand, what did you do? Put it in water? Did it help to reduce some pain? This kind of initial treatment is called **first aid**.

First aid could include things like preventing excessive bleeding or providing a simple splint to a fractured arm. First Aid can be useful in saving a victim's life. Let us learn about First aid and its rules.

### 13.3 FIRST AID AND ITS RULES

First Aid is the potential life saving technique which is given initially for any injury until professional medical treatment can be given to the victim.

In our daily lives we come across many situations when timely first aid can make a lot of difference to victim. Each of us should try to acquire knowledge and skill to handle these emergency situations in positive and responsible ways. First Aid is not a substitute for medical aid. The victim should be taken for medical assistance without losing time.

There are some simple rules of first aid:

- Keep a first aid box readily accessible in your house.
- First aid should be given quickly, without wasting time.
- You should remain calm and be resourceful while giving first aid.
- Take the victim to a safe place, if needed.
- Reassure the patient
- Disperse the crowd.
- Attend first to injuries which can be fatal.
- In case of unconsciousness do not give any liquids.
- Keep emergency helpline numbers handy.
- Call the doctor.
- Know the shortest route to the nearest medical institution and take the victim there.



Fig 13.4



### ACTIVITY 13.5

Make a first aid box for your home.

Make sure you include the following things in your first aid box—

- i. First aid manual
- ii. Gauze and adhesive bandages of different sizes
- iii. Adhesive tape
- iv. Crepe bandage
- v. Thermometer
- vi. Torch and new batteries
- vii. Scissors
- viii. Antiseptic lotion/ ointment
- ix. Sterile cotton
- x. Alcohol/antiseptic swipes
- xi. Caladryl lotion
- xii. Paracetamol ( for fever)
- xiii. Burn relief ointment
- xiv. Antibiotics for stomach infection
- xv. Antacid
- xvi. Isabgol (loose motions/constipation)
- xvii. Anti-inflammatory painkiller tablet and balm
- xviii. Map of the city indicating hospitals

Check the first aid kit periodically and replace any missing or expired items.



### ACTIVITY 13.6

1. Find out the current list of emergency numbers of Doctors, ambulance, hospital, police station and fire station.

Paste them at a prominent place or next to your telephone.

2. You can visit this website <http://indianredcross.org> and search for possible ways to handle emergencies.



Notes



Notes



**INTEXT QUESTIONS 13.7**

Describe any two desirable qualities you would want in a person administering first aid on you.

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**13.4 FIRST AID FOR SPECIFIC INJURIES**

Not all accidents are dealt in the same way. What can you do when someone gets injured?

In case of	What to do?
Fracture	<ul style="list-style-type: none"> <li>• Reassure the patient.</li> <li>• Support the injured part with the help of a splint (wooden scale or plank, umbrella, newspaper wad).</li> <li>• The splint should cover a joint above and a joint below the fracture.</li> <li>• Protruding bone should not be pushed back.</li> <li>• Do not move the injured part unnecessarily.</li> <li>• Move the injured to the hospital carefully</li> </ul>
Sprain/muscle rupture	<ul style="list-style-type: none"> <li>• Apply ice bag for at least ½ an hour.</li> <li>• Put an anti-inflammatory ointment and tie a crepe bandage.</li> <li>• Do not put pressure on the affected body part.</li> <li>• Do not move the injured part unnecessarily.</li> </ul>
Bleeding	<ul style="list-style-type: none"> <li>• Press the bleeding part with the help of sterile gauze, for 20 minutes. In case bleeding does not stop, ice bag should be applied on the dressing.</li> <li>• Wash the spot with antiseptic.</li> <li>• In case, blood is flowing in jerks, then tie a bandage tightly on the side, closest to the heart.</li> <li>• In case bleeding continues, raise the bleeding part to slow down the flow of blood and tie the bandage on the side which is away from the heart.</li> </ul>



Notes

	<ul style="list-style-type: none"> <li>• If the cut is very deep and has rough edges, immediately take the victim to a hospital. Tetanus shots may have to be given.</li> </ul>
Unconsciousness	<ul style="list-style-type: none"> <li>• Disperse the crowd around the victim. Take the victim out in fresh air.</li> <li>• Make the victim lie on his/her side.</li> <li>• Sprinkle water on face.</li> <li>• Loosen any tight clothing.</li> <li>• Rub his hands and feet for circulation.</li> </ul>
Burns	<ul style="list-style-type: none"> <li>• Remove victim away from fire.</li> <li>• Place burnt area under running cold tap water. (do not use ice, as it causes blisters)</li> <li>• Pat dry and apply antibiotic. (silver sulphadiazine)</li> <li>• Put clean gauze and bandage on the burnt part.</li> <li>• Give water to drink.</li> <li>• For serious burns, rush to the hospital.</li> <li>• Home remedy (egg or peeled aloe vera leaf applied on burnt area also helps to prevent blisters and eases pain)</li> </ul>
Shock	<ul style="list-style-type: none"> <li>• Make the victim comfortable and lay her down with the legs above the level of the head.</li> <li>• Loosen the clothes and cover with a blanket or a thick cloth to prevent the heat loss from the body.</li> <li>• Do not use hot water bottles to keep the patient warm.</li> <li>• Do not give anything to drink or eat as the victim may vomit and choke. In case thirsty, give a handkerchief soaked in water to suck.</li> </ul>
Electrocution	<ul style="list-style-type: none"> <li>• Switch off the current.</li> <li>• Person providing first aid should wear rubber sole shoes or slippers.</li> <li>• Move the victim away from the current using a wooden stick. Never touch the victim before disconnecting the electric supply.</li> <li>• Check for other injuries and provide first-aid as required for fracture, burns or shock.</li> </ul>



#### Notes

Burns from chemicals	<ul style="list-style-type: none"> <li>• Remove clothes and thoroughly rinse the burnt part with water, for at least 15 minutes.</li> <li>• Cover with clean dressing and take the victim to the doctor.</li> </ul>
Dog bite	<ul style="list-style-type: none"> <li>• Wash the area thoroughly with soap and water.</li> <li>• Do not put any antiseptic.</li> <li>• Do not cover the wound.</li> <li>• Go to the hospital for tetanus and anti rabies and strictly follow the vaccination schedule.</li> <li>• Consult a doctor as soon as possible.</li> </ul>
Sting	<ul style="list-style-type: none"> <li>• Remove the sting, with help of a tweezer.</li> <li>• Apply cold compress to relieve pain and swelling</li> <li>• Run cold water over and around the sting</li> <li>• Apply skin soothing lotion to relieve itching.</li> <li>• For a sting in the mouth, give ice cube to suck.</li> <li>• Apply vinegar for wasp sting and soda for bee sting.</li> <li>• In case swelling does not subside, consult a doctor.</li> <li>• A person prone to allergy or having been severely bitten may need to be hospitalized.</li> </ul>
Choking	<ul style="list-style-type: none"> <li>• In case a child chokes on something, he should be immediately turned upside down( legs up) and thumped on the back</li> <li>• One should never insert a finger in the mouth as it may push the object further,</li> <li>• In case the child swallows any object, he/she should be fed a lot of bananas.</li> </ul>



#### INTEXT QUESTIONS 13.8

- Choose the correct answers:
  - If a victim has a fracture and is bleeding as well as, the bleeding part should \_\_\_\_\_ .
    - be raised
    - not be raised





Notes

- iii. be treated first
    - iv. be tied to a splint first.
  - b) The fractured area can be tied to a \_\_\_\_\_ .
    - i. wooden stick
    - ii. rolled up magazine
    - iii. scale
    - iv. all of the above
  - c) While treating a sprain, cold water is applied to \_\_\_\_\_ .
    - i. lower the body temperature
    - ii. lessen pain and swelling
    - iii. calm the victim
    - iv. all of the above
  - d) A person suffering from shock needs a \_\_\_\_\_ .
    - i. blanket
    - ii. damp sheet
    - iii. hot water bottle
    - iv. thin saree
  - e) Victim of shock should be made to lie down \_\_\_\_\_ .
    - i. with the legs raised
    - ii. with the head raised
    - iii. flat on the ground
    - iv. on the side.
  - h) To disconnect a victim from electric shock, it is advisable to use \_\_\_\_\_ .
    - i. your hands
    - ii. any object nearby
    - iii. hockey stick
    - iv. a metal stick
2. Arrange the order in which first aid should be given.
- a. In case of electric-shock :
    - i. Pull the victim from the wire
    - ii. Treat the victim's burns
    - iii. Switch off the current
    - iv. Treat the victim for shock
  - b. In case of fracture :
    - i. Tie a splint
    - ii. Tell the patient not to move
    - iii. give something warm to drink
    - iv. call the doctor



Notes

**IMPORTANT CHECKLIST**

- Do you know your blood group? (only 2-3 drops of blood are needed for the test)
- Do you know if you suffer from any allergy?
- Do you know the important emergency numbers to seek help?
- Are you aware of a qualified doctor in your neighbourhood?
- Do you know the names of medicines and their dosage prescribed by your doctor?
- Do you eat medicines prescribed by the doctor only?
- Do you take the full course of medicines prescribed by a doctor and not stop eating the moment you feel better?
- Do you keep a file of all your medical investigation test reports, X-ray's, ultrasounds?
- Do you check the expiry date while buying medicines and discard all the expired medicines from your medicine cabinet?

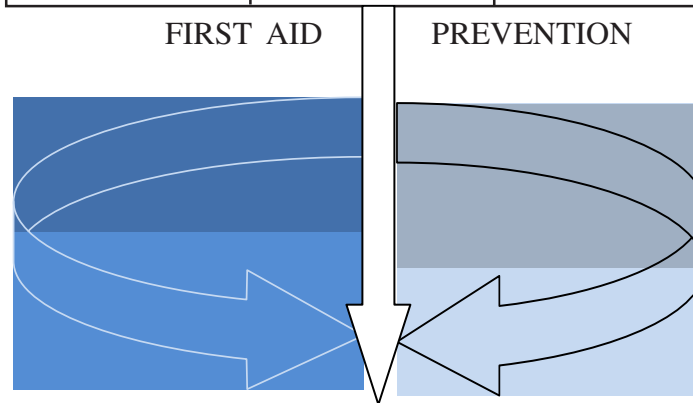
If your answer is no to any of these questions, then ensure you start now!



**WHAT YOU HAVE LEARNT**

**NEED FOR SAFETY AT HOME**

falls	Cuts and Wounds	Poisoning
burns and scalds	<b>ACCIDENTS AT HOME</b>	stings and bites
electrocution and shock		suffocation and choking



**SAFETY AND HEALTH ASSURANCE**



## TERMINAL EXERCISES

1. Little Shalu fell off the roof. Her grandmother advised to massage her foot and put some ointment. By the evening her foot had swollen. They waited for a few hours for the pain to subside but there was no relief. Finally, when the pain was unbearable they took her to a doctor. The doctor took an X-ray and informed that she had fractured her foot. If you were Shalu's sister or brother how would you have given her first aid? Analyze the mistakes the family members had made?
2. Inform your friend about ways to prevent getting an electric shock.
3. Advise your friends on how to give first-aid treatment in case of
  - (a) bleeding
  - (b) burn
4. A lady has dropped hot oil on herself. How will you help her?
5. Saleem was driving a car at a very high speed when it went out of his control and hit the motor cyclist. The boy became unconscious. Seeing no one around he decided to flee. He thought he was lucky to escape until he came home and realized he had hit his own son, who could have been saved had he got timely medical attention!
  - If you were the driver, what would you have done?
  - If you were a passer by would you have taken the victim to the hospital or just looked the other way?
  - Had you been the victim, what would you have expected
    - To be left lying on the road or to be immediately taken to the hospital?



## ANSWERS TO INTEXT QUESTIONS

### 13.1

1.
  - i Keep her hand flat while chopping vegetables on board/not curled finger.
  - ii Cutting with hand/Not using chopping board.
  - iii Knife not sharp/using blunt knife.
2. Anything sticky will pick up fine remnants of glass and the person handling the broken glass does not cut his/her hands.
3. Glass, when pushed, can break and cut your hand.



Notes

**Notes**

4. Sharpener, reason-as there are no chances of cutting his hand with it or he may cut his hand with a blade.

**13.2**

1. out of
2. extinguish
3. labelled
4. two
5. replaced
6. well-fitting
7. switched off
8. ISI certified

**13.3**

1.
  - a. Throw sand on open flame caused by electricity.
  - b. Throw cold water on fire.
  - c. Use multiple ladder to rescue people.
  - d. You will crawl on floor to come out from building
  - e. Use wet handkerchief to breathe.
  - f. Open all windows.
  - g. Use Blanket to douse the flames from a victims clothing.
2.
  - a. i
  - b. i
  - c. iii
  - d. ii
  - e. iii

**13.4**

- a. Kerosene oil should be stored in a labeled bottle or container or in its original container as someone can mistake it to be oil and use it.
- b. Medicines should be kept in the upper shelves of locked cupboard, out of reach of children.
- c. Cupboard, where all pesticides are kept, should be locked at all times.



Notes

**13.5**

Rahul got electric shock because of following reasons

- a. He was using too many electric appliances on one socket
- b. He touched the electric heater with wet hands.
- c. He pulled the radio along with its wire.
- d. Wires of the television were frayed.
- e. He use a 2 pin plug.
- f. He was barefoot.
- g. Appliance was kept on a marble counter.

**13.6**

- a. carbon monoxide
- b. plastic
- c. small
- d. supervise

**13.7**

- a. Kind/Empathy      b.Quick

**13.8**

1. a.iii      b.iv      c.ii      d.i      e. i      f.iii
2. a. ii, iv, i, iii  
b. iii, i, ii, iv



# INTRODUCTION TO RESOURCES

You receive a letter from that your examination will begin by the end of September. Your sister's wedding is also scheduled in September end. You need to decide on arrangements with your family like food to be served, guests to be invited, place for the wedding and many more tasks.

There is so much to do yet so little time. You also need to study for your exams. Will you be able to achieve all your goals? Can you manage these events systematically? Yes, you all **can do it**.

Let us find out how to:

- organize our work systematically and efficiently;
- make the best use of what we have, and
- use what we have to achieve what we want.



## OBJECTIVES

After reading this lesson, you will be able to :

- define the terms such as goal, resources and management;
- identify the different type of goals;
- classify resources as human and non-human;
- suggest guidelines to use resources especially those which are limited;
- explain the importance of management in day to day life;
- identify and explain the steps involved in management- planning, organising, implementing and evaluating;

- illustrate the use of management process in various life situations and efficient use of resources;
- understand the process of management remains the same in any situation, and
- evaluate whether resources at your home are being utilized effectively.



Notes

## 14.1 GOALS

Consider the situations given in the box:

What are these things that Asha, Rakesh, father, brother or you want? These are targets or aims which they want to achieve. **These aims are known as goals.**

Can you now define a goal? Yes, a goal is a target or aim that we want to achieve to satisfy our needs.

Lakshmi wanted to stand first in sack race in the inter school tournament. She practised a lot and did get the first position in the sack race.

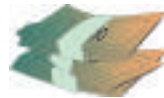

So, can you say what was Lakshmi's goal? Yes, we can. She wanted to get the first position in the race. Think of some of the goals which you have been able to achieve. Did you feel happy after achieving them? Yes, we all feel happy and satisfied after achieving our goals.

What happens if you are not able to achieve your goals? I do feel unhappy and dissatisfied.

- **Asha wants to become a doctor**
- **Rakesh wants to pass an examination**
- **Father wants to buy a new car/scooter/cycle**
- **Your brother wants to cook a special dish for the family**
- **You want to visit your friend's house on Sunday**
- **You want to write to your parents**
- **Boundary wall to be repaired.**

## 14.2 RESOURCES

Consider the following :

Want	What you need or what you will do to get what you want
To buy a dress	Money 
To go to watch a movie. How will you go there?	Walk or go by bus 



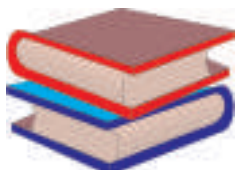
## MODULE - 2

### My Family & I



#### Notes

#### Introduction to Resources

Family wants to build a house	Acquire Land and money 
To post a birthday card to a friend	Procure Postal stamps and envelope 
To pass an examination	Gain Knowledge and books 

What are these things that you or your family members want to do? These are the goals that they want to achieve.

What are they using to achieve the goals? They are using means like money, bus, land, postal stamps, knowledge, etc., to attain these goals. The means used to attain goals are called **resources**. Or we can also say that resources are all the things needed and used to achieve goals.



#### ACTIVITY 14.1

Make a list of any two goals you want to achieve within the next five years. Compare them with the goals of your sister or brother who is about four years younger to you.

S. No.	Goals	Resources required
<b>Example</b>	Pass class Xth examination	books, time to study, knowledge, stationery, money
1.		
2.		





### INTEXT QUESTIONS 14.1

1. Define the terms goals and resources.
2. Identify the goals and resources from the jumbled list given below and write them in the table below.

**List: Buying a mobile phone, piece of land; Rs. 6000; making a chair; obtain wood; reaching bus stand; installing a community tap; making rangoli, planning to visit to a mela.**

Goals	Resources

#### 14.2.2 Types of resources

In activity 14.1, you have identified some of the resources which you will require to fulfill your goals over a period of five years. But just think of the years ahead. Your goals will keep changing, becoming bigger and more complex and there will be lot many resources you will use to fulfill these goals in the future. These resources can be money, land, time, energy, knowledge, material goods, community facilities, skills and abilities.

Now, you think about at this list of resources carefully. You will realize that there is a difference between resources like money, land, etc. and resources like knowledge, time, skills etc.

A piece of land or a house would have a fixed cost for everyone. In other words anyone can buy the same plot of land or house at the same price. We also have 24 hours in a day. We cannot share this time with others. You cannot give your 2 hours to your sister and make it 26 hours in a day for her and 22 hours a day for yourself.

Your sister embroiders beautiful designs. This is her skill (her resource) and only she can use it. Similarly, your energy or capacity to work is yours own. Nobody else can use your energy or time or your knowledge.

From the above examples we can say that some resources are within an individual and can be used only by that person and cannot be taken or shared by others. These resources are called **human resources**.



Notes



Notes

Can you now list human resources? Yes, they are energy, skills and abilities, time, knowledge. Human resources are the capabilities and characteristics of individuals.

At the same time, there are some resources which are available equally to everyone. Community facilities like parks, hospitals, market, library, buses, roads and schools can be used by everyone whosever wishes to use them. Money can change hands or your money can be used by your sister also. Land can be purchased by others too. A table, chair, gas stove, clothes etc. can be purchased. All such resources are known as **non-human resources**.

Let us list the non-human resources. These are money, land, community facilities, material goods.

To make it easier for you, let us look at this chart.

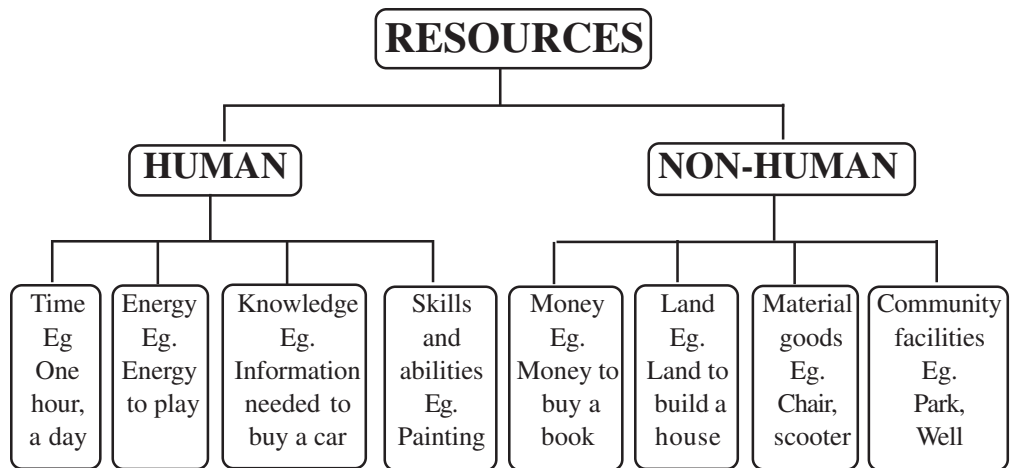


Fig. 14.1

So it must be clear to you by now that resources are of two types.

**Human resources** are those resources which belong to a person and cannot be taken away by others. You only can use your energy, time, knowledge and skills



**Non-human resources**, on the other hand, can belong to a person or a community. These can be shared by others. Community park is used by all the children to play. Money can change hands and go from one person to another. Land, table or chair can be purchased by anyone.



**ACTIVITY 14.2**

1. List the various community resources that you and your family use to do various activities.
2. Identify one community facility which is not available in your neighbourhood. Suggest ways by which this facility can be made available in your neighbourhood.

**INTEXT QUESTIONS 14.2**

1. Differentiate between human and non-human resources. Give two examples of each.
2. Why do we consider money as a non-human resource?
3. List all the resources you will need to achieve the goal of doing the weekly washing of your clothes?

**14.2.3 Guidelines to use resources**

Resources are always limited. The money available to us is limited; the total time of the day available to us is limited—24 hours for everybody. Land on this earth is limited too. To achieve our goals, we have to manage within the limited resources. Each one of us has limited resources to achieve the goals. It is therefore, important to use them wisely. Given below are some guidelines to use resources efficiently:

- Do not waste resources.
- Conserve resources.
- Try alternative ways of using resources.
- Learn ways to make resources last longer.
- While conserving resources make sure you do not deprive others.

**ACTIVITY 14.3**

1. From the list of community resources prepared by you in the previous activity, observe their misuse and suggest ways to prevent it.

**Notes**



Notes



### INTEXT QUESTIONS 14.3

1. With the help of two examples, bring out the importance of using resources wisely.
2. List three guidelines for making wise use of resources.

#### 14.2.4 Use of resources

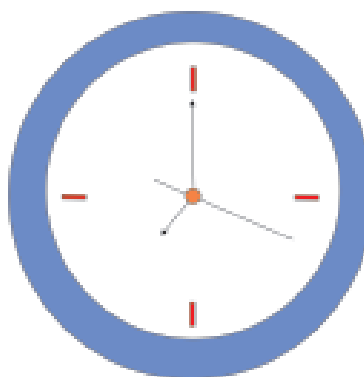
We have to manage our resources to achieve our goals. Sometimes we have to achieve many goals within a limited time. How would you manage your time so that you can do the following activities within a day like study for your exam, visit your friend, teach your younger brother or sister and help your parents to prepare the evening meal for the family in one day.

Thus, in order to finish all this work you must either:

- get more time,
- use your time effectively or
- decrease the amount of work to be done.

Out of these three possible alternatives, the first one cannot be done. You know that, time is a limited resource; you only have 24 hours a day. Now, what to do? Decrease the amount of work? No, all these are important goals which you want to achieve. None of them can be left out. So what could you do then?

The only alternative left with you is to plan the time schedule in such a way that all these goals can be achieved.



This is just one example. We all face similar situations with respect to other resources in our day to day life. Maximum utilization is the answer to our problem. This is for all resources. As resources are limited, we have to plan their utilization in such a way that we can get maximum benefit out of them. This is only possible with proper planning.



### INTEXT QUESTIONS 14.4

1. Why is it important to plan for the use of resources?
2. Sudha wants to become a doctor. For this she has to work very hard and secure 90% marks if she wants to get admissions in a good college. Her mother wants her to eat well so that she is healthy. Besides, Sudha also plays badminton for 2 hours in the evening as she is aiming for the state championship.

Identify Sudha's goals.

3. What are resources?
4. List four human and four non-human resources.
5. Given below is a list of activities. Write down the resources (both human and non-human) needed to carry out each of these activities:
  - (i) Buying vegetables from the market
  - (ii) Washing clothes
  - (iii) Sending a telegram
  - (iv) Helping your brother with his home work
  - (v) Doing embroidery on a table cloth



Notes

### 14.3 MANAGEMENT PROCESS

Consider that your family has to make a trip to attend your cousin's wedding. Your mother and father have to organize this trip. What all are they going to do?

- Preparing a list of all the tasks to be done.
- Planning for who is to do what and when.
- Arrange the money for the trip.
- Plan and buy the gifts for your cousin.
- Buying/stitching clothes to wear.
- Deciding about the number of days for the trip.
- Buying bus or train tickets.
- Father and/or mother applying for leave from work.
- Review of the plan from time to time.

These are some of the activities being planned. Now **'to attend the wedding of your cousin' is just one goal the family is to achieve.**

Our goal is that the family is able to attend the wedding and enjoy it. The resources that the family has to achieve this goal are money, time, energy and even people in the family would do what they are asked to do.

- Parents are using money to buy the tickets.
- Parents are using their time and knowledge to think and organize the trip.

**Management is a process of controlling/organizing whatever we have(resources) to achieve what we want(goal).**



Notes

- Your brother and you are helping to collect the clothes, accessories and toiletries and pack them.
- You and your brother are using your skill to design and stitch clothes to wear on the wedding.

Thus, all the family members are trying to manage this activities in order to be able to make this trip a success.

Can you now tell what is management?

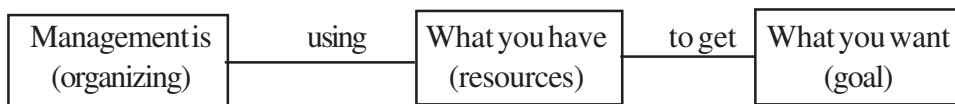


Fig 14.2: The management process

### 14.3.1 Steps in management process

Your parents, in order to attend the wedding are not only making plans, they are doing much more than that. They are taking action to complete each task. They are assigning duties and even making changes in plan as per their resources or the problems that are arising.

So, we can say that management is not only sitting and planning to achieve a goal. It starts with thinking out what to do, that is, you **plan**. Then you have to check to see that you have everything you need to put the plan into action. You also decide what is to be done by whom and how. In other words, you **organize**. After that, you perform the actual task, you put your plans to action or you **implement**. Once the task is over, you check to see whether everything went according to plan, and what went wrong or in other words, you **evaluate** and decide on any changes that should be made next time.

These all are steps in Management. There are four steps of management-

- Planning
- Organizing
- Implementing
- Evaluating

Planning has to be followed by organizing the ways and means for carrying out the plan. Once this is done, the plan has to be implemented. Evaluation is done at the end as well as during the implementation of the plan.

You can see that you cannot carry out an activity unless you organize your resources. Without organizing you cannot implement your plan. And, unless you evaluate your activities, you cannot find out your mistakes and avoid them in future.

Therefore, all the steps of management are related to each other and are dependent on each other for the successful achievement of a goal.



### ACTIVITY 14.5

1. Your PCP group students plan to go for a picnic. You have been made in-charge for organizing this picnic along with a team of five more students.

Given below is the diagram showing the steps of management process. Fill in the boxes, the actions and/or persons as required in each management step.

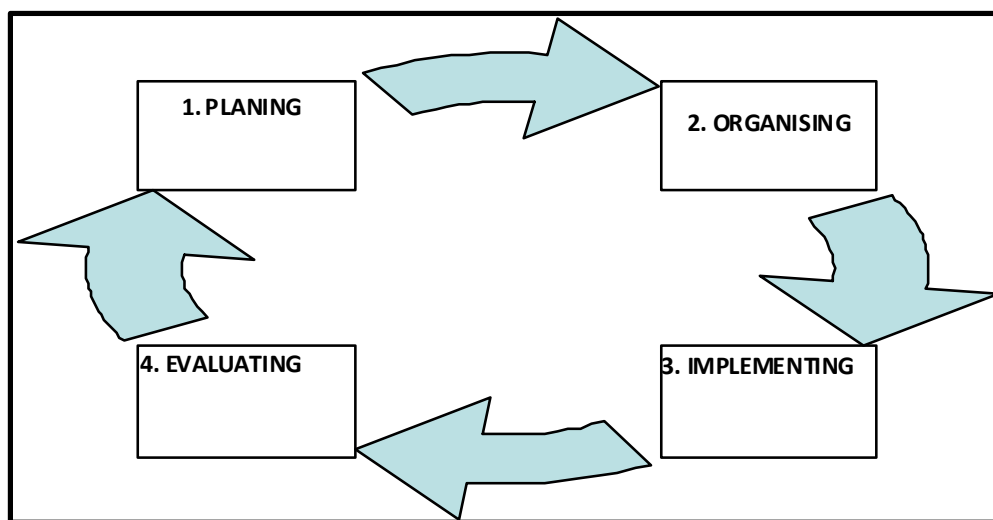


Fig 14.3

Let us study these steps in detail.

**Step 1 Planning:** This step consists of thinking in advance about what needs to be done. A simple way to plan is to make a list of all the things that need to be done. Since certain things have to be done first and others later, these should be arranged in a sequence.

Examine the plan your family made when they were going to attend your cousin's wedding. Your parents prepared a list of all that was to be done. After that, they chose the task that needed to be done before others. For example, your parents first planned to go to the bank to take out the money and then planned to get the reservation of the train and so on. While doing this they were arranging each activity in the sequence in which it was to be performed.

Apart from this, the family also decided upon the alternative date in case the train reservation for the decided date was not available. This is called a **flexible** or an **alternative plan**.



Notes



Why is planning important? Yes, it is important so that you do not forget any important aspect once you start carrying out the task. Thus, planning is listing activities, sequencing activities and providing scope for flexibility to cope up with changing situations.



### INTEXT QUESTIONS 14.5

1. List the steps in the management process.
2. Your mother is planning to invite your newly married cousin and her husband home. Given below is a list of activities that need to be done. Arrange them in the sequence in which they should be done.
  - a) Cook the meal
  - b) Go to the market to buy the vegetables
  - c) Plan the menu
  - d) Clean and dust the house
  - e) Get dressed
  - f) Get the gifts out and pack them
  - g) Soak channas
  - h) Set the curds

#### STEP 2 Organizing

When you plan, you decide

- who is to do what;
- how the activities are to be done;
- when the activities are to be done;
- you also decide what will you need (the resources) to carry out the plan.

The resources needed may be:

- human resources
- non-human resources

Do you remember what 'human' and 'non-human' resources are?

If yes, read on. If no, go back to previous section and read it again. Let us now go back and once again examine the example given earlier.

When your father was planning the trip, he decided to send you to the railway station for purchasing the tickets, that is, he fixed the responsibility on you. But a plan may not



always involve the help of other people. When you decide to cook the special meal for your family, you decide to do all the work by yourself.

Thus, after deciding who will do what, you set about collecting or assembling everything that you needed to cook the meal. All these activities of fixing responsibilities and collecting resources make up the second step of management that is, organizing. While assigning tasks to other people, we must make sure that they

- are willing to do them,
- have the ability to do them, and
- have the time to do them.

Can you think of what would happen if you assigned the tasks to people who were not willing or able to do them? What would happen if you asked a very busy person to do something for you? The works will either not get done or it may not be done properly. In this case, your plan may not be very successful. This means that organizing is an important component of management.

**Organizing means fixing responsibilities and collecting or assembling resources needed to carry out a plan.**

Organizing ensures:

- that all the work gets done;
- there is equal distribution of work;
- work gets finished on time and
- time is saved.

This means that since the work gets distributed among two or more persons, it saves time. Since more than one person is doing the work, all the work gets done and no one is over burdened either; that is, there is fair distribution of work.



### ACTIVITY 14.6

1. Make a plan for organizing Independence Day celebration in your locality. Distribute work to all the members of group according to their ability and time available to them.

### STEP 3 Implementing

You had made a plan to attend wedding in Step 1. Assume that the wedding has been planned and work has been assigned to different people. But the work has to be actually done. This is known as implementing. Implementing is also known as



Notes



**Notes**

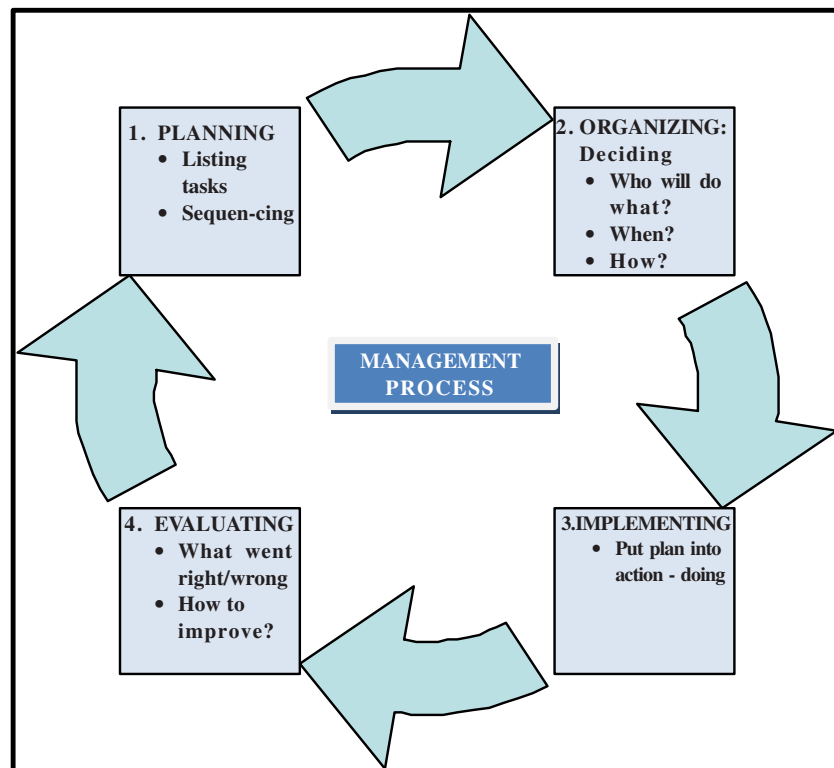
putting a plan into action. For example, how did you cook and serve the special meal? The activities done in order to carry out your plan come under the steps of implementation. Implementing means carrying out the actual activities as planned and organized earlier. As the plan is being carried out, you have to check the progress of your plan. When you do this, you may sometimes find a changed situation which calls for some fresh decisions. For example, suppose they had planned to travel by train and the tickets are not available for all the family members. What will you do? Your family may then decide to:

- travel by bus, or
- travel by road, or
- let only father or mother travel

So, you make adjustments as the plan is being carried out or implemented.

**STEP 4 Evaluation**

Once the plan has been implemented we now need to examine the steps of management to judge ‘what went right’ and ‘what went wrong’. Evaluation means examining the progress of your plan to find out any short-comings and take corrective measures accordingly. For example, you cook a meal for your family. After the cooking is over, you taste the meal. You also assess whether everybody was able to eat tastefully.



**Fig. 14.4 Management is a cyclic process**

You check what you are doing? You are finding out how is your cooking and serving. Why do you do that? It is done to check mistakes and improve upon them so that they are not repeated in future. Therefore, evaluating is done at the end of implementing a plan. However, to ensure that the plan is managed well at each step, we should also evaluate at each step, i.e., while planning, organizing and implementing.

Since you are constantly evaluating your work, you come to know the defects of your plan and you are thus trained to make better plans in future.

Thus, you will realize that management is a cycle process. Planning leads to organizing, which leads to implementing, which further leads to evaluating and evaluating helps to make future plans better.



### INTEXT QUESTION 14.6

1. Your friend reaches her tuition/coaching classes late everyday Use your knowledge of management process to tackle this problem.

### 14.3.2 Steps of management process are inter-related

When we are making a building, we need to organize for all the material, labour, money and obtain government permission. There are specific steps to be followed in the construction of the building. Missing of one aspect will affect the next step or the next step may not be possible at all. Similarly, all the steps of management are important. An activity can be done even without proper management but the results are not as good as they would have been if planning, organizing, implementation and evaluation were done properly. Hence, all these steps are essential for the satisfactory achievement of our desired goals. Each step of planning is related to the other. Imagine, a building without a foundation. Planning has to be followed by organizing the ways and means of carrying out the plan. Once this is done, the plan has to be implemented. Evaluation is done at the end as well as during the implementation of the plan.

You can see that you can not carry out an activity unless you organize your resources. Without organizing you cannot implement your plan. And, unless you evaluate your activities, you cannot find out your mistakes and try to avoid them in future.

Therefore, all the steps of management are related to each other and are dependent on each other for the successful achievement of a goal. Each step involves taking a series of decisions without which that step can not be achieved.



Notes



Notes

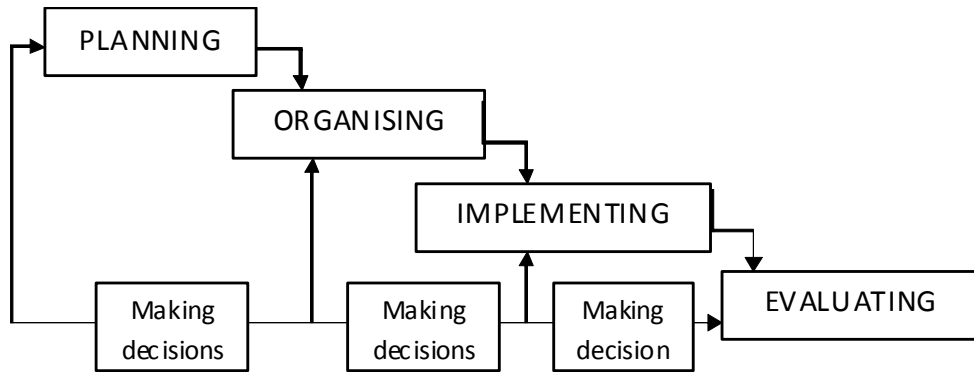


Fig. 14.5

At each step of management, one has to decide things and make changes if required. This process is known as **decision making**.



**ACTIVITY 14.7**

- List three alternatives in the best order to achieve the given tasks:

Task	Alternatives
Reducing expenditure on clothes for the family	a. b. c.
Thinking of a place where the whole family can go for a picnic.	a. b. c.
Reducing consumption of fuel or electricity at home.	a. b. c.



**INTEXT QUESTIONS 14.7**

- Why is organising important?
- Your brother wants to host a party to celebrate the first birthday of his daughter. List the goals and the resources he will need to achieve his goal successfully. The party goes off very well and all the guests appreciate its management.

- Can you analyze and suggest what went right at each steps of the management process.
- What suggestions can your brother give to his friends to be able to host the party even better in future in terms of number of guest, menu and quality of food needed and entertainment programme.



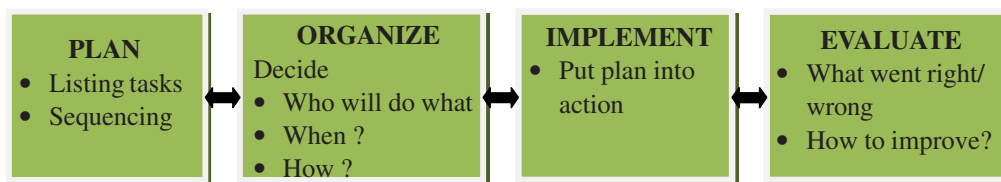
Notes



## WHAT YOU HAVE LEARNT

In order to make it easy to remember here are the main points of the lesson:

- The means used to attain goals are called ‘resources’. There are two types of resources, human and non-human resources.
- Management is a process through which we attain our goals by the efficient use of available resources.
- Management is a process of organizing and controlling whatever resources we have, to achieve what we want.
- There are four steps of management process and these are related to each other.



## TERMINAL EXERCISE

1. What is the relationship between goals and resources?
2. Give any four examples to differentiate between human and non-human resources.
3. What is the importance of planning? You attended your cousin’s wedding. All went well except the following:
  - The train reservation was not confirmed till the last minute.
  - On reaching you found that one of your dresses did not fit properly.
  - The family had left behind one of the gifts purchased for the cousin.

On the basis of what you have learnt in this lesson, suggest at least one way in which each of the above stated problem could have been avoided.
4. Explain the importance of evaluation in the process of management.



Notes

5. Surroundings of your house must be kept clean for a healthy environment. List the resources you will need and use for this purpose. How will you plan for the beautification of space around your house?



**ANSWER TO INTEXT QUESTIONS**

**14.1**

1. **Goals:** A goal is a target or aim that we want to achieve or goals are our needs/wants which we try to achieve.

**Resources:** The means used to attain goals are called Resources. They are all the things used to achieve our goals.

<b>Goals</b>	<b>Resources</b>
Buying a mobile phone	piece of land
making a chair	Rs. 6000
making rangoli	wood
visit to a mela	bus stand
	community tap

3. Give justification to elders why cleaning and beautification should be done in the area surrounding your house. Convince them that it is a must for all family members and the neighbours and that the biodegradable material will be recycled and used as manure.

**Resources-** time, energy, materials like brooms, buckets, rubber tubing, pots, implements to dig and level the area, plants, manure, resources to start vermiculture.

- a) **Planning-** Make a plan to see what all needs to be done like-
  - i) digging the soil
  - ii) removing all weeds and unwanted plants and leaving them to dry.
  - iii) level the area
  - iv) plants some perennials along the wall of the house.
  - v) keep some potted plants
  - vi) make a pit in a corner away from the house for vermiculture or preparing leaf manure.
- b) Involve all family members in different tasks.



Notes

**14.2**

1. Human resources-are those resources which belong to the person and cannot be taken away by others.e.g. time,knowledge.

Non-human resources can belong to the person or the community. These can be taken over or shared by others.e.g. park, money.

- 2 . Money is non-human resource because it can change hands.

**14.3**

1. To achieve our goals, we have to manage within the limited resources. Each one of us has our own limited resources to achieve the goals. Therefore, it is important to use them wisely.e.g money is limited, the total time of the day is also limited.

2. Points to be kept in mind while managing resources:

- Do not waste resources
- Conserve resources
- Understand alternative use of resources
- Learn the proper way to make sure you do not deprive others.

**14.4**

1. As resources are limited, we have to plan their utilization in such a way that we can get maximum out of them. That is why it is important to plan for the use of resources.

2.
  - Were the resources used effectively by all family members?
  - Was bath taken under the shower or a bucket full of water was used?
  - Were Fans and lights left on, even if nobody was sitting in the room?
  - Did family members walk to the nearby park or went by scooter and then walked there?

Request your family members to appraise their friends, relations and colleagues to use resources judiciously and check if they get water or electricity bill which is lower than before.

**14.5**

1. Planning, Organizing, Implementing and Evaluating
2. c, g, h, b, d, f, a, e.



### 14.6

#### Planning

- Get uniform ready
- Finish home work
- Plan for time to get up
- Get bag ready

#### Organizing and implementing

- Getting ready
- Eating breakfast
- Catching school bus

#### Evaluation

- Got ready on time?
- Time to eat?
- Caught bus on time?





15

## MANAGEMENT OF TIME AND ENERGY

We perform many activities in a day. Some of the activities like eating, cooking, exercising, sleeping, bathing and entertaining are also carried out by us along with our work related activities but all these are to be completed within the available time that is 24 hours. We work and feel exhausted, if we do not rebuild our energy from time to time. This means that like time we also need something else to perform these activities. This is called **energy**. It is the capacity to do the work. It means that just as available time as a resource is limited, we also have limited amount of energy. So we can say that within limited time we must finish all our work with our limited energy.

Time and energy are the resources available to all of us. These two resources are very closely interlinked. Each one affects the other. Although energy available to each one of us is different but the time we all have with us is equal i.e. 24 hours in a day. If we want to finish our work properly and on time we need to make best possible use of our time and energy. In other words we must learn to manage our time and energy properly. But how do we manage our time? How do we use our energy to complete our work on time? We will learn about these issues in this lesson. Time and energy are both limited resources and we have to use them efficiently.



### OBJECTIVES

After studying this lesson you will be able to:

- explain the meaning and importance of time and energy as valuable resources;
- discuss the role of a time plan for effective utilization of available time;
- elaborate the procedure of making a time plan;
- suggest ways to save time and energy;



- understand the role of dovetailing in time and energy management;
- explain the concept of work simplification and its usefulness in the conservation of time and energy, and
- evaluate your work by simplification methods at home.

## 15.1 TIME AND ENERGY AS RESOURCES

You have studied in the previous chapter that a resource is something that is available to you for getting some work done. Resources are of two types- human and non-human. Resources like time, money and energy are available to us but these are limited and we have to use these wisely and efficiently.

Making use of available resources efficiently in a way that we get our work done is called the management of that resource. If you go to your friend's house on a bicycle, you will require time to reach the friend's house and energy to ride a bicycle. Even if you walk to the friend's house, you still will need these two resources. Most of the time these two resources are used together and managed together. If you reach your friend's house using a short cut you are saving time and your energy. Hence, you are managing your time and energy more efficiently. **Making best use of time and energy is known as time and energy management.**

## 15.2 TIME PLAN/ SCHEDULE

In the previous chapter, you have studied that planning the use of resources helps us in using them effectively and efficiently. In case of time, we have to prepare a **time plan** or we can call it a **time schedule**. It involves thinking in advance about how are we going to use our time for doing various activities. **A time plan is an advance plan of what we are going to do in a given time period.**



Figure 15.1

You have two assignments to submit to your study centre by tomorrow. You find that your mother is not well and you have to get medicine for her, cook dinner for the family and make beds. With the limited time available with you, how do you think you will complete all the tasks successfully? Think of the different options available to you:

**Option 1-** Get medicines, make dinner, make beds, serve dinner and next day request your teacher to give you one more day to submit the assignments.

OR



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**Option 2-** You list all the tasks to be done and prioritize them. Get medicine and give to mother; do assignments; cook dinner and in between go and make the beds, serve dinner, and go back to complete the assignment.

What was the difference between the two options?

In the first option, you did not list all activities and prioritize them. In second option, you planned your time properly and completed all the tasks i.e. you made a Time Plan in your mind.

What was the first thing you did in Option 2 which made it possible to do your work successfully. Yes, you listed all the activities to be completed and organized them in an order of priority.

### 15.2.1 Steps in time-planning

- 1. Listing all the activities:** List activities that you have to perform on a particular day. These can be eating, sleeping, going to school, school time and complete homework, playing going for shopping with your mother, helping your father in cleaning the surroundings of the house; dusting in the house; going for music or dance classes, etc.
- 2. Grouping flexible and inflexible activities:** Separate the activities into two types. Those which are **flexible** like going to market for shopping. The timing and day for shopping can be changed as the situation demands and can be delayed to the next day. The other set of activities are those which are **inflexible**, like going to school, music or dance classes. The time for performing these activities is fixed and cannot be delayed or changed.
- 3. Estimating time required for performing each activity:** In the list that you have prepared in the step-1, allot time required for performing each activity. Going to school may take between 7 -10 minutes or 1 hour. School time may be 5-6 hours. Fill in all other works which can be done within a short time in between all the other activities with fixed activities.
- 4. Balancing:** This is the most difficult task. On one hand you have the total time of the day available with you and on the other hand are the activities you have to do. After allotting time to each of the activities, you might find that the total time required by you to do all the work is more than 24 hours.

However, you only have 24 hours to complete the task. Balancing is the adjustment of time for each of the activities. Reducing time from some activities can help in balancing the total time needed with the total time available bring to harmony. This is a step towards adjustment where listing of flexible and inflexible activities can help you. Also start with things that take long to complete so that these are ready when you are ready.



Notes



**INTEXT QUESTION 15.1**

1. Classify the following activities into flexible and inflexible activities, keeping in mind that these are for your parents.

Activities	
Dusting, Mopping, Cooking food, Stitching clothes, Going to school, Washing clothes, Going for shopping, Preparing lunchbox for children, to attend a marriage ceremony, Ironing clothes	
Flexible	Inflexible

2. List the steps of making a time-plan.

**15.2. 2 While planning the use of your time in advance keep the following points in mind:**

1. Make a time schedule which you can easily follow.
2. Make a time schedule which is practical and flexible and can be changed easily in emergencies.
3. Think of an alternative plan of action for emergency.
4. Allow for rest and leisure time activities.
5. Dovetail for better time utilization of time. (You will learn about this a little later in this lesson)

Here is a model of time schedule for Seetha who has a school going child and is also doing a course through open schooling. A list of all the activities to be performed by her are presented in a table given below.

**Note:** The activities that are underlined in the table given below have to be done at those definite times as the time to do them is inflexible. The other activities can be done according to her convenience as they are flexible.

**Table 15.1- An example of a time-plan**

TIME	ACTIVITY
<u>5.30 a.m.—6.15 a.m.</u>	Wake up, freshen up
6.15 a.m.— 7.00 a.m.	Wash clothes
7.00 a.m.—8.15 a.m.	Prepare breakfast and start cooking lunch
<u>8.15 a.m.—8.30 a.m.</u>	Dress the child and send to school



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8.30a.m.—9.00 a.m.	Cleaning the surroundings and packing the lunch box
9.00 a.m. —9.30 a.m.	Have breakfast
9.30 a.m. —11.00 a.m.	Clean the house
11.00a.m – 11.30 a.m.	Bathe and get ready
11.30 a.m. — 11.145 a.m.	Rest
11.45 a.m. — 12.45 p.m.	Study
<u>12.45 p.m. — 1.00p.m.</u>	Pick the child from school
1.00 p.m.—1.45 p.m.	Serve and eat lunch
1.45 p.m.—2.00 p.m.	Wind up and clean kitchen
2.00 p.m. —2.45 p.m.	Personal Hobbies/rest
2.45 p.m. — 3.30 p.m.	Pre-preparation for dinner
3.30 p.m. — 4.00 p.m.	Tea break
4.00 p.m.—4.15 p.m.	Shop for daily needs
4.15 p.m.—5.15 p.m.	Help child to do homework
5.15 p.m. — 6.15 p.m.	Prepare dinner
6.15 p.m.—7.30 p.m.	Serve and eating dinner
7.30 p.m.—8.30 p.m.	Wind up and clean kitchen
8.30 p.m—8.45 p.m.	study
8.45 p.m- 10.00 p.m	Get ready for sleeping
10.15 p.m.—10.30 p.m.	Rest

From the time plan presented above, you can observe that there are certain times of the day when a number of activities have to be performed within a fixed time period. These time periods are called **peak load** periods. These peak loads need to be managed by proper planning. For example, children’s uniform can be ironed and kept ready for the next morning and some pre-preparations of lunch and breakfast can be done in the evening. This will reduce some pressure from this peak work load period in the morning next day. Working constantly leads to tiredness and **fatigue** both physical and mental. You may have also noticed that the afternoon time is being spent on rest and hobbies. This is called **leisure period**. This is essential to give rest to the body and to break the monotony of the hectic routine. This also helps to recharge the body physically and emotionally. This also helps us to manage our peak work load efficiently and remove stress.

Every member of a family will have their own time-plan and any chance of time-plans of family members clashing can be resolved by adjusting timing of different activities. Consider a family, where the son is the first to leave for school, daughter leaves for



college after that, then the mother leaves for office; hence their bathing time can be adjusted accordingly. Son takes bath first, next is the daughter and then their mother. Father is a shopkeeper, so he can bathe after everyone has had their bath and left for school, college or office.



### ACTIVITY 15.1

Use the time plan given in Table 15.1 and answer the following:

If a guest arrives suddenly during one of your peak load period how would you manage your tasks. \*

*\*Hint: Reschedule activities/ seek help of other family members/ reschedule activities/ simplify tasks*

### 15.2.3 Advantages of preparing a time plan

When you plan and implement a time plan /schedule, you realize how useful it has been to you.

#### You will be able to:

- finish all your work efficiently without feeling tired;
- find time for rest and relaxation;
- find time for your hobbies like playing out door games (cricket, football, volleyball and hockey) doing embroidery , listening to music, dancing, watching T.V. etc;
- do more productive work in less time
- you are saved from last minute tensions and confusion; and
- better quality work is done.

What will happen if you do not make a time-plan either mentally or on paper?

- You may not have enough time for each task.
- You may not have time for unforeseen events like visitors dropping in or an unexpected and urgent visit to the doctor if a family member has been taken ill.

To enable us to complete all our tasks, we must try to save time. How do you think we can save time?

We can save time by-

- making time plans and following them strictly.
- not wasting time.

- using labour saving equipments.
- doing two or more activities at the same time which is called as dovetailing of activities.

**Dovetailing** is the ability to do two or three activities at the same time.

Let's see how we can incorporate dovetailing in our activities.

You have to

- cook dal, vegetables, wash dishes and wash clothes in a washing machine.
- study, cook dinner, help sister with her homework.

There are two ways of doing these activities-

**Option I:**

Activity	Time needed
Cook dal	20 minutes
Cook vegetables	20 minutes
Wash dishes	20 minutes
Wash clothes	20 minutes
<b>Total time taken to do all these activities</b>	<b>80 minutes</b>

**Option II:**

Activity	Time needed
Fill water in washing machine, add detergent and start washing	5 minutes
First put water on stove for boiling dal	2 minutes
Clean and wash dal and put it in water for cooking	5 minutes
Wash and cut vegetables and keep for cooking	10 minutes
Wash dishes while cooking and washing of clothes is going on	20 minutes
Wind up kitchen cooking	5 minutes
Wind up washing of clothes and drying	8 minutes
<b>Total time taken to do all these activities</b>	<b>55 minutes</b>

Also, while doing dishes you can listen to music or radio.

Thus by dovetailing activities, we can save time.



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**ACTIVITY 15.2**

1. Observe your mother performing her household chores for one full day. List all the activities she performs. Suggest to her ways by which she can save her time and is able to watch T.V. Follow her hobbies and find time for her to rest also. Request her to record the number of hours she is able to save by following your suggestions.
2. List four activities that your mother performs in a day and suggest how they can be dovetailed.

Let us now see how we can save energy to do tasks which otherwise might have got left undone.

**15.3 WAYS OF SAVING ENERGY**

During the day, we all do different types of activities which require different amount of energy.

- i) **Heavy activities** like running, jogging and mopping requires large amount of energy.
- ii) **Moderate activities** like sweeping, ironing and cooking require average amount of energy.
- ii) **Light activities** like reading, watching T.V. and listening to music need very little energy.



**ACTIVITY 15.3**

1. Make a list of heavy, moderate and light activities performed by every family member in your home. (One example for each type is given. Add more in the table given below).

Family	Heavy	Moderate	Light
Father			
Mother			
You	Cycling	Cooking	Studying





**INTEXT QUESTION 15.2**

1. State whether the following statements are True or False. If false, write the correct statement below it.

a. Time and energy are closely related to each other. _____	True/False
b. Time can be utilized more effectively if time-plan is not made. _____	True/False
c. When we combine two or three activities together it is known as dovetailing. _____	True /False
d. While preparing time-plan there is no need to think about number of activities to be performed. _____	True /False

2. A list of some activities is given below. State whether light, moderate or heavy work is required to be done to perform these activities.

- a. preparing notes \_\_\_\_\_
- b. mopping house \_\_\_\_\_
- c. diwali cleaning \_\_\_\_\_
- d. cycling \_\_\_\_\_
- e. listening to radio \_\_\_\_\_
- f. telling a story \_\_\_\_\_

**15.3.2 Saving energy**

Now you must be able to differentiate between different types of activities which require different amount of energy. We cannot escape performing heavy activities. Since everybody needs to perform all kinds of activities, we must learn ways to save energy.

Some of the ways to save our energy, while performing different activities, are:

- i. Break the task into smaller activities:** Completing one task involves a number of tasks e.g. in lesson about care and maintenance of clothes, you have learnt about washing of clothes. Now to break this task of washing clothes into smaller activities involves separating different types of clothes, cotton-coloured, white etc., dipping clothes in soap/detergent solution for some time; rubbing of soiled areas etc. It also involves taking out soap/



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detergent. Then these are to be squeezed and put out or hung for drying.

**ii. Cut all extra movements and combine activities:**

Sometimes we see that some people do more of running around and do less work. For example some guests arrive at home and you have to serve them water. You keep going to the kitchen and bring one glass of water at a time.



Fig.15.2

Don't you think that a better option is to bring all the glasses in a tray and serve all the guests. You have already learnt about 'dovetailing' in this chapter. It also helps us to save energy. In case you need to hang the clothes for drying on the roof and you have to sweep the roof as well, going to the roof once will save the energy of climbing the stairs twice.

**iii. Perform activities in a better order:** Perform the activities in a proper order. Some tasks are to be performed before some other activities and some after them. For example, if the dusting is done before the sweeping of the floor, the dust will again settle on the furniture. Dusting will have to be done again. In the example given above regarding hanging clothes and sweeping the roof top, the correct sequence will be to sweep the roof-top first and hang the clothes later.



**ACTIVITY 15.4**

Given below is an example of cleaning the table after eating food. Sequencing can help to reduce movement.

Sequence of activities to perform the task	How to reduce movements
<ul style="list-style-type: none"> <li>• Collecting items</li> <li>• Bring few things at a time to the washing area</li> <li>• Comeback to collect remaining items</li> <li>• Take remaining things to the kitchen</li> <li>• You make a number of trips to kitchen</li> </ul>	<ul style="list-style-type: none"> <li>• Collect all the plates of the same size and put smaller on top of the bigger ones and keep them on a tray.</li> <li>• Put all spoons on the sides of plates</li> <li>• Take them to kitchen.</li> <li>• You make only 1-2 trips to kitchen</li> </ul>

Based upon this example suggest ways to reduce unnecessary movements in the following tasks:

- a. Serving food
  - b. Winding up the kitchen after cooking meal
  - c. Making bed
- iv. **Be more skilled at your work:** Being skillful in performing the tasks makes it easy to perform. This saves a lot of energy. Rajita is learning to ride a bicycle. Her father is holding the bicycle from behind to provide support and balance. He is constantly supervising her learning so that she is safe and gradually picks up the skill in riding a bicycle.
- v. **Use the correct posture :** Arun is sweeping the floor using a traditional broom with short handle. He needs to bend down, sweep with short strokes which allows him to complete his task without getting tired and spending unnecessary time and energy resulting in adopting a wrong posture for the work and sweeping inefficiently. If he uses long handle broom, he can do the same work without bending and making long strokes which reduces energy and time required to do the job. Similarly, while studying it is important to sit erect on the chair. Long hours spent on studying in a wrong posture may lead to pain in the neck and back.
- vi. **Work at proper heights and keep things near the place of use:** Sitting on the floor and trying to iron clothes cannot be done for a long time, as you have to bend to do the work. You will get tired and most likely your back will start paining. This happens because the ironing place is low and is not comfortable while ironing or cooking a meal or writing an assignment. However, if you are ironing on the table which is too high your arms and shoulders need to be raised to adjust to the height. This too causes unnecessary strain and fatigue.



Fig.15.4

When the work surfaces are of comfortable height, you save a lot of energy and indirectly save time also as you will be able to work faster. Where do you keep your text books and note books? Yes, near your study table because you can pick them easily while working on the study table. If you had kept them in a different room or a rack far away from your study table every time you need a book, you would have had to get up and bring it, you waste time and energy. So now, you know why we need to keep things near the place of their



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use. It is also important to use things and then put them back in their place. This way you don't waste time in looking for things.

- vii. **Use labor-saving devices:** Use of electric labour saving devices helps to save both time and energy. e.g. using mixer grinder to grind spices or a toaster to toast bread. This saves a lot of energy and time.



**ACTIVITY 15.5**

Make a list of time and energy saving equipments at your home. Perform any one activity both ways with and without using any device. Note down the difference in time it has taken and how much tired you feel with and without its use.



**INTEXT QUESTIONS: 15.3**

1. List several ways by which the following persons will save energy while doing their work:
  - a) a child studying in class V
  - b) a farmer
  - c) a housekeeper
2. Given below in the box are activities required to clean and rearrange the house. List them in the correct order in the space given below.

Cleaning the house	Washing clothes	Making a Stuffed Parantha
dusting , shifting the furniture, clearing webs, mopping, sweeping	brushing, soaking, drying squeezing, hanging	Rolling, making a ball, making dough, preparing; filling, frying

**Correct order of doing**

--	--	--



## WHAT YOU HAVE LEARNT

Time and Energy management → making the optimal use of your time and energy

### Time management



Time plan



- finish all the work in time
- find time to rest
- find time to enjoy yourself

### Energy management



Use work simplification procedures like

- cutting out extra movements
- developing work skills
- adopting correct postures
- working at proper height
- keeping things within reach
- use of proper equipments and labour saving devices



## TERMINAL EXERCISES

1. What are the advantages of preparing a time-plan?
2. Differentiate between heavy, moderate and light work. Give one example of each.
3. Why is it important to categorize activities of work?
4. What do you understand by the term dovetailing and how does it help to save time? Explain with a suitable example.
5. Your mother has to leave home for two days. All the family members have been assigned different tasks being performed by her. You have been assigned the task of cleaning the house.

Using the knowledge you have gained from this chapter, what approach will you use to save time and energy which your mother may not be using while doing all such tasks. Help your family members also to make a plan to save their time and energy.



Notes



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**ANSWERS TO INTEXT QUESTIONS**

**15.1**

1.

Activities	Flexible	Inflexible
Dusting and Mopping	F	
Cooking food		I
Stitching Clothes	F	
Going to school		I
Washing clothes	F	
Going to shopping	F	
Preparing lunchbox for husband		I
Going to marriage ceremony	F	
Ironing Clothes	F	
Doing Prayer	F	

2. (a) Listing all the activities  
 (b) Grouping flexible and inflexible activities  
 (c) Estimating time required of performing each activity  
 (d) Balancing

**15.2**

1. a. True  
 b. False. Time can be utilized effectively only if time schedule is prepared.  
 a. True  
 b. False. Considering number of activities to be performed is very important while preparing time schedule.
2. a. Moderate.  
 b. Heavy.  
 c. Heavy.  
 d. Heavy.  
 e. Light.  
 f. Light

**15.3**

1. Refer to the text
- 2.

<b>Correct order of doing</b>		
Cleaning webs shifting furniture, sweeping, dusting, mopping	soaking, brushing, squeezing, hanging, drying	Sifting flour, mixing ingredients, baking, decorating



Notes



## MANAGING FAMILY INCOME

Food, shelter and clothing are basic needs of a human being. How can we fulfil these basic needs? We have to buy food, clothes and shelter (house). To buy anything, we need money. From where can we get this money?

Your parents work to earn money to run the house and try to fulfil the needs of all the family members. Can your father or mother earn extra money through other sources or can you and your sibling contribute towards the family income? Yes, you can by helping in the household chores like cleaning, mopping, washing dishes or clothes. You can stitch clothes at home or take tuition or repair household gadgets yourself or do typing for others. With this extra money earned or saved members can meet additional needs of the family.



If money is managed carefully, we can achieve our goals as well as save some money. In this lesson our focus will be on the management of family income. Let us see how we can do this.



### OBJECTIVES

After reading this lesson you will be able to :

- define family income;
- list sources of family income;
- define expenditure and savings;
- state the purpose of managing family income;
- explain the process of managing family income;
- define and give the importance of a spending plan (budget);



- develop a budget for a family, and
- evaluate the budget of your family and suggest any changes required.

## 16.1 INCOME AND ITS SOURCES

Whatever is earned in the form of money which comes into the family is called its income. This income may come from various sources.

### 16.1.1 Sources of Income

Income can be salary from a job, part time classes, rent from a house or shop, interest received from bank or sale of shares and other investments. It may also be earning from the use of your skills or profit from your household produce etc.

When you use your skills like stitching clothes for family members or growing vegetables at home for your consumption or knitting sweaters for family members, you do not get any money in hand but at the same time you save money which you would have given to the tailor for stitching or for buying a sweater or vegetables etc. Such savings add to your income.

**Family income is the income from all sources like salary of family members, rents, and interest received from banks and savings from using skill of family members.**

Money can also be saved by using free facilities like medical facilities, free education for children or rent free accommodation. Can you now define family income?



### INTEXT QUESTIONS 16.1

1. Choose the correct option from the choices given to complete the statement.
  - a. Income means
    - i. money
    - ii. house
    - iii. furniture
    - iv. all the above.
  - b. Family income means
    - i. income of all related persons living in the household
    - ii. commodities and services produced in the country
    - iii. right to consume goods and services
    - iv. all the above.



Notes



Notes

**ACTIVITY 16.1**

1. Discuss with your parents and list all the sources of your family income.
2. List the skills of all your family members. Give them suggestions as to how they can contribute to family income by making use of their skills. Ask them to make some products for sale.

Plan and organize sale of the products made by the family members. Request your friends and family members to evaluate the total efforts in terms of questions given below and report the findings with suggestions for improvement.

- i) was the venue, date and time for sale appropriate?
- ii) stalls and decorations were alright or not?
- iii) were the products sold too expensive?
- iv) were the products well made?
- v) did a lot of people come to the sale?
- vi) has the profit motivated the family to make more products to sell?

**16.2 EXPENDITURE**

Whatever money we spend from the income for buying various things to fulfil our needs is called expenditure. Let us make a list of all the items and services on which your family spends income. Your list may include several items and services given in the list below.

food

housing

clothing

education

transport

medical expenses

entertainment

others

let us define expenditure-

**Income brings money into a family while expenditure takes money out so that it is not available for anything else.**



### ACTIVITY 16.2

Make a list of your immediate needs (short term expenditure) and needs which can be fulfilled at a later date (long time expenditure).



Notes

## 16.3 SAVINGS

A part of the income which comes into a family must also be kept aside for future use. This money which is set aside is called 'saving' and may be used at any time in future for any purpose like family needs or emergencies, children's marriage or higher education, old age security, health emergencies or to buy luxury goods etc.

**Saving is the money set aside by the family for use in times of need.**

## 16.4 NEED FOR MANAGING INCOME

To ensure that some money is saved, the expenditure must be less than the income. In order to manage within your income, you need to plan the expenditure. This is known as 'managing income' and means spending wisely so that all your needs are met. For this, you will have to make a 'spending plan'.

**A spending plan is a planned approach to spend money. It is based on the total income of a family. It helps the family to live within their income and also save money for future needs and emergencies.**

## 16.5 WHAT IS A SPENDING PLAN OR A BUDGET?

It is actually a list of requirements of all the family members, with the money allocated for each item to fulfil these needs. To be able to do this you must also know the income of a family.

Why make a spending plan?

- If we do not make a spending plan, we are likely to spend more than what we have. So, if our expenditure is greater than our income it may lead us to borrow money to fulfil needs.

Expenditure > Income ————— Borrowing  
(> means more than)

- To avoid getting into trouble, make your spending plan and keep your expenditure less than the income, in order to save money.

Expenditure < Income ————— Saving  
(< means less than)



Notes

### 16.6 HOW TO MAKE A SPENDING PLAN?

Use the following steps to make your spending plan :

1. Keep in mind all the income and facilities available to you for the period for which you are making the spending plan.
2. List all the requirements (commodities and services) needed by the family members for that period.
3. Prioritize these needs.
4. Allocate funds keeping in mind the total income. This will help in effective utilization of money and other resources.
5. Balance the spending plan. This will also help to save some money.

Second step is listing all the requirements (main category). All families have their own spending plan according to their needs.

The items of expenditure in your family may be as follows:

Main category	Sub category	Allocation In Rupees
<b>Food</b>	<ul style="list-style-type: none"> <li>• fresh foods</li> <li>• processed foods</li> </ul>	
<b>House</b>	<ul style="list-style-type: none"> <li>• rent</li> <li>• repairing and maintenance</li> </ul>	
<b>Clothes</b>	<ul style="list-style-type: none"> <li>• purchase of garments/fabric</li> <li>• repairs and stitching</li> <li>• dry cleaning and washing</li> </ul>	
<b>Education</b>	<ul style="list-style-type: none"> <li>• books</li> <li>• fees</li> <li>• stationary</li> <li>• occupational expenses</li> </ul>	
<b>Household expenses</b>	<ul style="list-style-type: none"> <li>• fuel</li> <li>• household supplies</li> <li>• paid services(servant)</li> </ul>	
<b>Transport</b>	<ul style="list-style-type: none"> <li>• personal (automobile)</li> <li>• public</li> </ul>	
<b>Public utilities</b>	<ul style="list-style-type: none"> <li>• electricity</li> <li>• telephone Water</li> <li>• postage</li> </ul>	



Notes

<b>Home furnishings</b>		
<b>Medical expenses</b>	<ul style="list-style-type: none"> <li>• adults</li> <li>• children</li> </ul>	
<b>Tax</b>	<ul style="list-style-type: none"> <li>• income</li> <li>• property or home</li> </ul>	
<b>Entertainment</b>	<ul style="list-style-type: none"> <li>• adults</li> <li>• children</li> </ul>	
<b>Personal allowances of family members</b>		
<b>Emergencies</b>		
<b>Savings</b>	<ul style="list-style-type: none"> <li>• saving deposit</li> <li>• insurances</li> <li>• investments</li> </ul>	



**INTEXT QUESTIONS 16.2**

Fill in the table drawn below by writing the budget head against each expenditure. The first item has been done for you.

	<b>Expenditure</b>	<b>Spending heads</b>
1.	repair of tap	house
2.	buying a pack/strip of Asprin tablets	
3.	going to a friend's house by bus	
4.	eating out	
5.	buying a toothbrush	
6.	buying a water bottle for school	
7.	getting a telephone connection installed at home	
8.	paying electricity bills	

**16.7 HOW MUCH TO SPEND ON EACH ITEM?**

Each family has its own needs which are different from those of other families. (Even your needs as a student for books, copy, pencil pen, eraser etc. will be different from other students). How much a family spends on the different items depends on many factors.



## Notes

Let us now consider these factors-

- i Income- The total family income from all sources will basically help to decide how much can be spent on various items. More the income more will be the money spent for purchasing different items.
- ii Size of family- More the number of family members more will be the expenditure on food and clothing. Hence, the family will be able to spend less on entertainment and luxuries etc.
- iii Age of family members- If there are school going children, expenditure on education, school uniform, stationary etc. will be more.
- iv Place of residence- In big cities like Delhi and Mumbai, cost of living, food, house rent, travel expenses and school fee are higher than in small towns and villages.
- v Skills- If some family members have certain skills like making preserves or doing household repairs like repairing electrical equipments, carpentry etc. then the family will have to spend less on getting the repairs done.
- vi Savings- Keeping in mind the future needs.

- **Prioritise these needs**

You have listed all the needs of your family members. Before making a spending plan it is important to prioritise all the needs. Below is given a prioritized list of needs according to a particular family. You will agree that the needs and priorities of each family are different.



### ACTIVITY 16.3

- Make a list of your own expenditures for a week and prioritise them.
- Ask your friend also to do the same.
- Analyse and discuss with your friend, the flaws in your priority lists.
- **Allocation of funds**

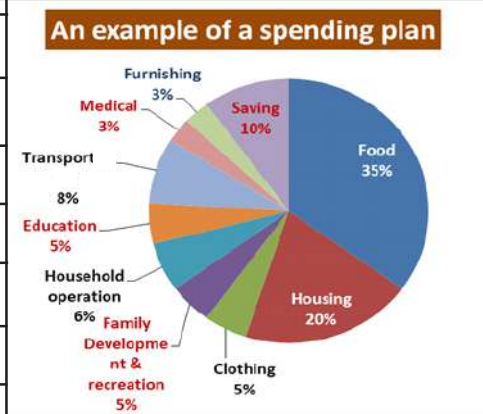
You have the list of expenditures ready with you and you know how much money is available. Now you allot money to different heads according to your income and see how much you are able to save from your income.

The table below gives you an idea about the percentage of expenditure and the amount of money spent on each item.



Notes

Item of Expenditure	Amount (Rs.)
food (35%)	3500
housing (20%)	2000
clothing (5%)	500
family recreation (5%)	500
household operations (6%)	600
education (5%)	500
transportation (8%)	800
medical expenses (3%)	300
furnishing (3%)	300
saving (10%)	1000
<b>TOTAL</b>	<b>10000</b>



**Table 16.1. Expenditure on various items for a family**

This table shows the main heads of expenditure. While making your own spending plan you can put down the expenditure on each item separately in detail.

- **Amount to be saved**

Every family, whatever the number or age of its members, must save a part of their monthly income for later needs. The needs can be education or marriage of children, medical expenses, house building, buying a car or a refrigerator depending on the needs of the family, the family will have to shift emphasis from spending to saving. As a guide it is advisable to save about 10% of the monthly income.

- **Balancing the spending plan**

While making your spending plan, you can put down the expenditure on each item according to your requirement. The most important and difficult step in making a spending plan is balancing i.e. making expenditure less than income. With experience we all can master this art.

There are two ways of doing this-




Notes

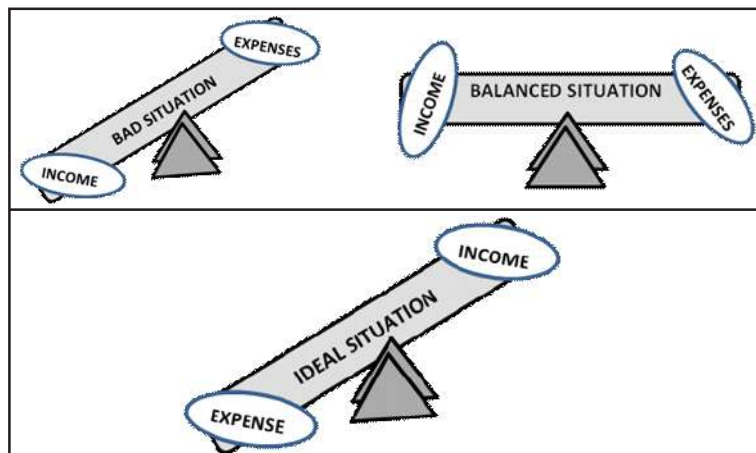
**BALANCING**

Two ways to do it



Earn more	Cut down the expenditure
<ul style="list-style-type: none"> <li>• Find other sources of supplementary income according to your capabilities, skills and knowledge like taking tuitions, stitching clothes, making handicraft articles etc.</li> <li>• Increase the income by taking up part-time job, over time, household production like kitchen garden, poultry farming, bee keeping, and making preserved food items.</li> </ul> 	<ul style="list-style-type: none"> <li>• Do not waste food.</li> <li>• Cut down on eating outside.</li> <li>• Check extra expenditure on electricity, water etc.</li> <li>• Ironing and washing at home.</li> <li>• Economic use of stationery i.e. paper, pencils etc.</li> <li>• Use of public transport.</li> <li>• Use of cycle instead of a rickshaw.</li> <li>• Use of public library instead of buying story books.</li> <li>• Looking out for sales/ rebates and places where prices are comparatively lower.</li> <li>• Shop in one trip.</li> <li>• Avoid impulsive buying.</li> <li>• Allocate funds to items which are not necessary, at the end.</li> </ul>

These are some of the ways by which you can help supplement family income. Therefore the best budget is where income and expenditure allocation is balanced.







**Notes**

A spending plan

- Discourages ‘impulsive buying’ i.e. keeping away from buying what you really do not need at a particular time.
- Spending plan helps you to meet all the needs of all your family members. For this you make a list, allocate money for each item and then spend according to the spending plan.

Make a spending plan/budget for a family of 5 members i.e. parents, grand mother and two school going children.

Father’s income from job = Rs. 16,000  
 Mother’s income from job = Rs. 14, 000  
 Interest from bank (from savings) = Rs. 1,000  
 Total income = Rs. 31,000 per month

When your spending plan is ready and you have balanced it also. The last step is keeping records of all the expenditure.

Why should you maintain a record of expenditure? Yes, this will help you to-

- know how much you have spent on each item
- know whether you have spent more or less on certain items than the previous month
- control any unnecessary expenditure by not spending money on these items
- plan for future needs
- save money
- check or compare old prices with new prices
- avoid getting cheated

The table below will give you an idea of how to keep a record of expenditure each month.

**Table 16.2**

**Record of expenditure**

Month \_\_\_\_\_ Year \_\_\_\_\_

S.No.	Items	Week 1	Week 2	Week 3	Week 4	Total
1.	Food cereals pulses					

## MODULE - 2

### My Family & I



Notes

### Managing Family Income

	vegetables fruits milk ghee/oil butter spices egg, meat others					
2.	<b>House</b> rent repair house tax					
3.	<b>Clothes</b> cloth clothes- ready made tailoring charges dhobi ironing shoes/ chappals/ sandals socks, handker- chiefs undergarments school uniforms					
4.	<b>Education</b> school fees books, stationary etc.					
5.	<b>Household bills</b> electricity bill water bill any other					



Notes

6.	<b>Medical expenses</b> doctor's fees medicines					
7.	<b>Transport</b> bus fare metro fare petrol repair/servicing of cycle, car etc.					
8.	savings					
9.	any other item					

## 16.8 CHARACTERISTICS OF A GOOD BUDGET

- a. **Accurate estimates of income:** Find the exact amount of income that will be available to you for expenditure. (Gross income of the family differs from its take home pay).
- b. **Accurate estimates of expenditure:** The expenditure estimate should be as accurate as possible. Look up the budget of the previous years or the records of past expenditures and savings.
- c. **Reasonably accurate allocation of money:** The resources on expenditures side should be reasonably accurate; the family must be able to determine its present needs and wants and anticipate future changes (e.g. for some families budgeting for October- November will need extra outlay on spending on festivals and other occasions.)
- d. **Flexible:** A budget is made flexible by allowing sufficient margin on certain items. It should allow you to divert some money from one item to another as per your need. For example, some money can be easily diverted from entertainment in case of an unexpected high medical expenditure.



### ACTIVITY 16.4

Given below are some of the categories of expenditure. Ask each family member to prioritize them independently and compare the result.



Notes

Items	Ranking by			
	Father	Mother	Yourself	Sister/ Brother
food				
clothing				
education				
entertainment				
payment of bills				
medical expenditure				



**INTEXT QUESTIONS 16.3**

1. Write T for true and F for false in the space provided before each statement. If false, write the correct answer in the line given below each question.

a. \_\_\_\_\_ Budget is the process of allocating income among various uses.

\_\_\_\_\_

b. \_\_\_\_\_ Family goals affect the budget.

\_\_\_\_\_

c. \_\_\_\_\_ A budget forces you to decide what is more important than the other.

\_\_\_\_\_

d. \_\_\_\_\_ A budget can't help in achieving long term goals.

\_\_\_\_\_

e. \_\_\_\_\_ Budgeting helps in the management of your finance.

\_\_\_\_\_

f. \_\_\_\_\_ The main purpose of a budget is to allow you to live within your income.

\_\_\_\_\_



Notes

g. \_\_\_\_\_ Income of the family member does not influence the budget.

\_\_\_\_\_

h. \_\_\_\_\_ Making a budget helps in saving money.

\_\_\_\_\_

i. \_\_\_\_\_ Major amount from the income is spent on food.

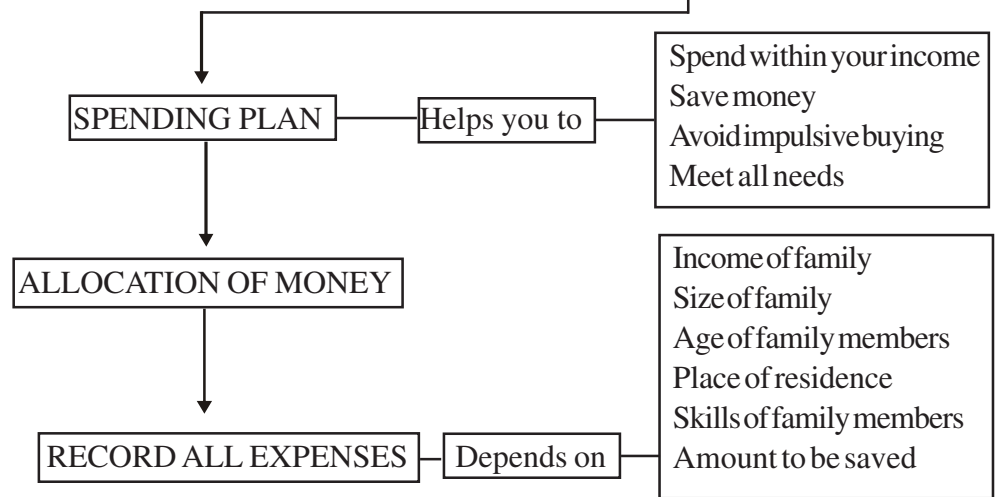
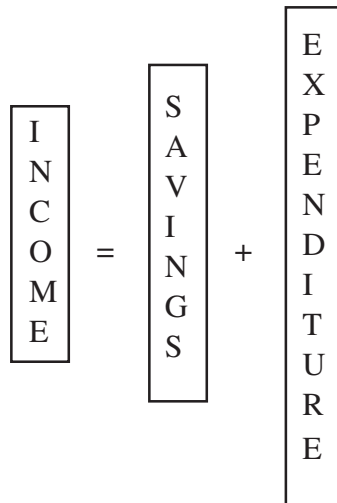
\_\_\_\_\_

Now you must have understood the importance of managing money as it is an important resource. Your family members work very hard to earn money. It should not be wasted. You must start managing the money you get as pocket money. Also help your parents understand the importance of money management and help them in preparing a budget.



**WHAT YOU HAVE LEARNT**

- Rent
- Free facilities
- Land
- House
- Bank interest
- Skills





Notes

**TERMINAL QUESTIONS**

1. Define any two of the following:
  - a. Money Income
  - b. Direct and Indirect Income
  - c. Budget
2. Give any five points highlighting the importance of 'Family Spending Plan'.
3. List the characteristics of a good budget.
4. Request your friends to discuss and plan their family's spending plan. If they are not willing to do it
  - Give two reasons to convince them about the importance of a spending plan.
  - Let them develop their spending plans.
  - Give suggestions for improving it by supporting with reasons for each flaw in the plan.
5. Define the term "spending plan" and explain the factors on which the allocation of money on different items is decided.
6. Make a simple spending plan for the following families:
  - a) A family of four consisting of the parents and two children aged 12 and 17 years. They live in a rented house in Delhi. The father gets a salary of Rs 5,000.
  - b) A family of six, grandparents, parents and two school going children 8 years and 12 years old. They live in a village and have a small farm which brings them an income of Rs 3,000. The school in the village does not charge any fees from its students.

**ANSWERS TO INTEXT QUESTIONS****16.1**

1. a. iv  
b. i

**16.2** (i)house (ii) medical expenses (iii)transport (iv)entertainment  
(v) household (vi) education (vii)publicutility (viii)publicutility

**16.3**

- a. True
- b. True
- c. True
- d. False - A budget can help in achieving long term goals
- e. True
- f. True
- g. False - Income of family members influences the budget
- h. True
- a. He was concerned about other people/friends.



**Notes**



## LIFE BEGINS

We are all fascinated when we watch a baby playing all by itself in its bed. The tiny hands and feet, the innocent smile and twinkling eyes- all bring out the protective and parental instincts in us. We are sure you must have wondered how this tiny being comes into the world.

Well, it is no magic! You may have observed the birth of a baby in your own family or neighbourhood. You might have also observed the special care of the mother-to-be during pregnancy- a very special phase in her life. It will be interesting for you to learn about this process because you will soon come to a stage in life when you too, will become a parent. Girls would be able to understand better the changes their body may go through if they are pregnant and boys will be able to understand and appreciate the needs of women during this significant phase of their lives.

In this lesson, you will learn how a baby develops in the mother's body and how it arrives into the world after the completion of its development in the womb.



### OBJECTIVES

After completing this lesson, you will be able to:

- relate the signs of pregnancy with the changes taking place in a woman's body;
- describe the development over the three trimesters;
- recognize the need for taking special care of a woman before and after she delivers a baby;
- advocate the right of the female foetus to be born and receive all the necessary post natal care;
- negotiate and plan your own family and
- assess the social and emotional consequences of an unplanned pregnancy.





Notes

- the frequency of urination may increase towards the end of pregnancy;
- hormonal changes taking place in the woman’s body could lead to:
  - a craving for certain foods such as sweets or spicy or sour food. Some pregnant women may even want to eat certain inedible things like mud or chalk or slate. If they have a craving for such inedible things, they must consult a doctor;
  - an aversion to certain foods and smells such as onion, apples, perfumes etc.

However, not all women undergo these changes to the same extent. The experience of cravings and aversion may vary. Some women may experience such feelings for one pregnancy and not for the other.



ACTIVITY 17.1

You may ask your mother to recall any cravings and/or aversion she had when she was carrying you or her other siblings. What did she do to overcome these cravings or aversions?

.....

.....

**Do You Know?**

1. What determines the sex of a foetus? The sex of a foetus is determined by the combination of sex chromosomes of the mother and the father. You will recall that it is only the father who carries the chromosome that determines whether the sex of a baby will be male or female. You may read your Science books (Lesson- Heredity) or use a library or internet to find out more about chromosomes and how they help in deciding whether a baby would be a girl or a boy.
2. When two babies are born to a mother at the same time, they are



Fig. 17.3A mother with twins



Notes

### The Third Trimester: 6 – 9 months

The increase in size of the foetus continues and it can now regulate breathing, body temperature and suck its thumb. In the eighth month of prenatal development, the foetus' body prepares for life outside the uterus. It gets antibodies from the mother so that it can be protected from diseases after birth (Figure 17.4).



Figure 17.4: Development during the three trimesters

#### 17.1.3 Factors Affecting the Growing Foetus

The growing foetus, although well protected inside the womb, is affected by certain factors.

##### 1. Mother's emotional state

It is believed that a happy mother gives birth to a happy baby. That is why a pregnant woman must avoid tension and stress. The mother's emotions of anxiety, distress, fear or grief affect the foetus and the baby may be irritable after birth.

##### 2. Mother's diet

A mother must take a nutritious diet so that her baby gets proper nutrition to grow. This is because oxygen and food needed by the foetus is obtained from the mother through the placenta. If the mother's diet is not enough or lacks in some nutrients, the baby will also be born weak. Such a baby is more likely to catch infections very soon and fall sick after birth. A pregnant woman's diet must contain:

- rice / wheat for carbohydrates - required for energy;
- pulses / eggs/ non vegetarian food for proteins - required for muscle development;



Notes

***Do You Know?***

An ultrasound is a technique where sound waves of very high frequency are used to check the growth and development of the foetus. It is a very safe procedure and does not harm the unborn child in any way. This procedure is very useful in detecting any defects in the foetus at a very early stage.

**5. Disease, germs that affect the foetus**

If a mother catches diseases like German Measles or an infection like sexually transmitted infections or HIV/AIDS, their germs may sometimes pass the thin placental wall and damage the growing foetus. Mothers must therefore be careful during pregnancy and avoid catching infections.

**6. Drugs, alcohol and smoking**

Smoke from cigarette or 'bidi', chemicals from alcohol or drugs like 'afeem' (morphine) pass into the blood stream of the foetus through the placenta and can cause major damage to the foetus. A pregnant woman should avoid sitting in a room where someone is smoking as the smoke can affect the health of the baby.



Figure 17.6: A pregnant woman should avoid drugs, alcohol and smoking

**ACTIVITY 17.2**

Write two slogans/ messages to inform women about importance of good health or ill effects of taking drugs/alcohol/smoking during pregnancy. Samples are given below: "Healthy Mother – Healthy New born" or "Smoking can harm the foetus – Avoid it during pregnancy".



## Notes

people around her. You must have seen the concern shown by all the members of her family, neighbourhood and the community in general. They advise the pregnant woman to do or not do certain things. This advice may be based on local practices and customs. Therefore, it may be best to consult a trained professional before acting on any such advice.

During pregnancy, the family must ensure that the following are taken care of:

### 17.2.1 Medical Check-Up

After the first missed period, the lady becomes anxious to know if she is pregnant. This can be done with a simple urine test done by the doctor during her first visit to the health centre. Kits to test pregnancy at home are also available with chemists.

It is extremely important for all pregnant women to go to a doctor for a proper medical checkup. If a doctor is unavailable in the area, a trained midwife or some other trained health professional can be consulted. In fact, the pregnant woman should get herself registered at the nearest health centre or with a doctor as soon as possible. If you live in a village, seek the help of an ASHA or an Anganwadi Worker. She will take you to the nearest health centre. At the health care center a pregnant woman should not hesitate to consult the doctor available whether male or female. The doctor ensures that a pregnant woman undergoes some routine blood and urine tests - these are haemoglobin (for anaemia), blood group (for transmission of blood, if required) and blood sugar (for diabetes), VDRL test (for sexually transmitted infections) and HIV/AIDS.

Her weight is measured and she is given an injection for Tetanus. This ensures safe motherhood and delivery. A visit to a doctor at least once a month for the first 8 months of pregnancy and once a week during the last month is a necessity. Figure 17.7 indicates a pregnant woman being examined by a doctor. She may need to consult the doctor more frequently in the first trimester because of various problems she may have.

These days' doctors may advise ultrasound test or sonography to check for any abnormalities in the growth and development of the foetus. Some parents and doctors misuse this facility to determine the sex of the foetus and terminate the pregnancy if the foetus is found to be female. This is called female foeticide. The practice of female foeticide has led to a serious decline in the number of baby girls being born in our country.



**Figure 17.7: Medical Check-Up during pregnancy**



## Notes

In different regions and communities in our country, there are traditional practices which may sometimes advocate or prevent the pregnant women from consuming certain foods. This could be for various reasons like fear of abortion or other complications during pregnancy. Some foods are recommended to get a male child or even to have a baby with fair complexion. Most of these practices are simply myths and superstitious beliefs. The foods that may be advised to be avoided could be rich sources of various nutrients that are beneficial for a pregnant woman, like eggs, fish, pulses, milk and others.

**ACTIVITY 17.3**

1. Interview at least two pregnant women to find what changes (if any) they have made in their diet to ensure their and their baby's good health. Record your observations.
2. Talk to your elders and make a list of foods traditionally recommended by them during pregnancy. Then talk to a doctor/nutritionist and categorise these foods as desirable and undesirable giving appropriate reasons.

**17.2.3 Weight**

A pregnant woman gains weight as the foetus grows. Normally, she should gain on an average of 12 kg. This indicates healthy growth of the baby. How can a pregnant woman judge whether she is gaining weight normally? If possible, she should weigh herself during each visit to a doctor. If she stops gaining weight, or there is sudden weight gain in the last few months, she must go to a doctor.

**17.2.4 Taking Medicines**

Any medicine taken by a pregnant woman must be strictly under medical supervision of a doctor. Taking medicines must be avoided as far as possible. The pregnant woman must take a tetanus vaccination in order to prevent tetanus in the newborn child. This is taken in two doses. The first dose should be taken as early as possible followed by a second dose, a month after that. The doctor may prescribe medicinal supplements of iron and folic acid for preventing or treating anaemia.

**17.2.5 Clothes to Be Worn**

Clothes worn during pregnancy sometimes pose a problem, especially for young girls who feel shy of their growing abdomen. A loose kurta worn with a salwar would look good and be comfortable at the same time. A well draped sari also gracefully conceals the growing abdomen. Ensure that the clothes allow free and unrestricted movement of the body.



## Notes

### 17.3 SAFE DELIVERY

Perhaps the most anxious time in a woman's life is the time of giving birth. Some common questions are- Will I be safe? Will my baby be safe? What will happen in case of any complication?

She can easily reduce her anxiety by finding out where she can have a safe delivery- it may be a hospital, a primary health center (PHC) or a registered nursing home. By gathering this information beforehand, she can decide where to go at the time of delivery and also collect the things she would need at that time. By choosing to register with a doctor, she assures herself of competent medical attention at the birth of her child. It is always safer to have an institutionalized delivery, that is, in a hospital or nursing home. If a woman has not been able to get herself registered with a doctor and the health centre is far away, the next best option is to call a trained midwife or dai to the house for the delivery.

A trained midwife is important because she would -

1. do everything scientifically,
2. follow the rules of cleanliness,
3. know what to do in case of any complication.

The five Rules of Cleanliness :

- Clean hands and fingernails
- Clean surface for delivery
- Clean sheet
- Clean all items to be used for delivery with antiseptic solution and soap
- Clean cutting of the cord with a new blade and tying with new (fresh) thread



#### ACTIVITY 17.4

1. Identify and make a list of a hospitals/nursing homes/Primary Health Care Centre in your neighbourhood where deliveries can be conducted.
2. Make a list of things that would be required in case a delivery has to be conducted at home by a trained midwife/ dai.

### 17.4 CARE OF THE NEW BORN BABY AND MOTHER (POSTNATAL CARE)

Whether a girl or a boy – a baby brings a smile of joy to everyone's face! Both boys and girls have an equal right to be born and to get love and care from their parents. The human



**Notes**

**17.4.2 Immunization**

The baby needs to be immunized against preventable infectious diseases. As a mother, you must find out the proper immunization schedule for your baby so that you can take your baby for immunization at the right time. Immunization is done free of cost at all government hospitals and health centres. Table 17.1 describes the National Immunization Schedule for babies. It also lists the immunization schedule for a pregnant woman.

**Table 17.1: National Immunization Schedule**

Vaccine	Disease Prevented	Age				
		Birth	6 weeks	10 weeks	14 weeks	9-12 months
<b>Primary vaccination</b>						
BCG	TB	✓				
Oral polio	Polio	✓	✓	✓	✓	
DPT	Diphtheria, Pertussis, Tetanus		✓	✓	✓	
Hepatitis B*	Jaundice		✓	✓	✓	
MMR	Measles, Mumps, Rubella					✓
<b>Booster Doses</b>						
DPT + Oral polio		16 to 24 months				
DT		5 years				
Tetanus toxoid (TT)		At 10 years and again at 16 years				
Vitamin A		9, 18, 24, 30 and 36 months				
<b>Pregnant women</b>						
Tetanus toxoid: 1 <sup>st</sup> dose		As early as possible during pregnancy				
2 <sup>nd</sup> dose		1 month after 1 <sup>st</sup> dose				
Booster		Within 3 years				



Notes

bottle-feeding their babies. If possible, they should still try to make an effort to breast feed the baby as it has important advantages for both the baby as well as the mother. Some of them are given in Table 17.2.

**Table 17.2: Comparison between breast-feeding and bottle-feeding**

Characteristic	Breast-feeding	Bottle-feeding
Nutrient content	Breast milk contains adequate proportions of all the nutrients that a baby needs. It can be easily digested.	The nutrients may be made adequate by fortifying powdered milk. If fresh milk is used, there may be an imbalance in dilution, making it difficult to digest.
Hygiene	Breast milk is clean and reduces chances of the baby getting diarrhoea.	Bottles need to be sterilized properly; otherwise the baby may catch infections and become ill.
Temperature	The temperature of breast milk is always right. It can directly go from the mother's breast to the child's mouth.	The temperature of milk has to be adjusted.
Protective quality	Breast milk contains antibodies that protect the baby from certain illnesses.	This milk does not contain any protective agents.
Emotional bond between the mother and baby	Breast-feeding helps in developing a special bond between the mother and child.	The baby can be bottle fed by any other person, so it may not form any special bond between the mother and child.

**For the Mother**

Mothers should not forget to have an adequate and balanced diet while they are breast feeding so that they are able to produce milk in appropriate amount and quality for their baby. Mothers who are working may have a problem in continuing breast-feeding their child. Government of India has now extended the leave from work with salary to all women to look after their babies in the first few months of their life. This is called maternity leave and is of 6 months duration. Now fathers who are in government employment can also get paternity leave of 15 days to look after their wives and the baby. For those who work in organizations where this facility is not available, one solution could be for mothers to extract (take out) their breast milk and store it in clean, sterilized bottles. The baby's caretaker can then feed the baby this milk like any other milk. This will at least help the baby to get





## Notes

## 17.5 PLANNING THE FAMILY

It is the right of both the parents to decide when and how many children they want to have. Married couples can talk to elders, friends or counsellors about the pros and cons of having a small family and methods to control birth. However, it is their final decision to decide when to start their family and how many children to have.

Family planning is often written about in magazines and newspapers and seen in documentaries or advertised on radio, television and cinema halls. Have you ever wondered what 'family planning' is and why planning the family is so important? Planning your family means that the parents can decide when to start their family that is have their first baby. It also means that there should be an adequate age gap between two children in a family. It is very important to plan a family so that both mother and children stay healthy and raising children is a stress free process for the parents.

You may have seen some families who have a large number of children born one after the other, as against others who have only one or two children. Do you see any difference in these two families? With so many pregnancies, the mother's health is affected. With the birth of a second child immediately after the first, she is unable to give proper attention and care to the older one. She becomes irritable and scolds and beats her children often. Such children feel very insecure and unloved. Even the father feels helpless and often frustrated as he is not able to offer much help to the mother or the babies.

In a small family, the mother has more time and energy to look after all the needs of her child and spend time together so that the child feels loved and secure. A small family can also spend more money to meet the needs of the children such as education, entertainment and professional training.



(a) Unplanned family



(b) Planned family

Figure 17.9



Notes



### TERMINAL EXERCISES

1. How does a woman come to know that she has become pregnant?
2. What do you think would be the consequences of conceiving a baby by a young woman who is under 18 years of age?
3. Trace the development of the foetus from the first to third trimester of pregnancy.
4. List four things a woman and her family can do to ensure the birth of a healthy and happy child.
5. What do you understand by the term fourth trimester?
6. Identify two practices to care for a mother and her baby after delivery. Why are these practices important?
7. Why is it important for a child to be breast fed right from birth? Give two reasons in support of your answer.
8. Prepare a short talk giving reasons for the need to give special care to a pregnant woman and the role of her family in doing so.
9. A couple should plan a small family. Give reasons.



### ANSWERS TO INTEXT QUESTIONS

- 17.1**
1. (i) b, (ii) b, (iii) a
  2. March 22, 2010
  3. Ill effects: Complications during delivery, birth of a physically/mentally disabled child, risk to life of mother and child, miscarriages.
  4. Might be pregnant: Meena, Sheela,  
Consult a doctor: Mary, Pinky  
Not pregnant: Jaswinder
- 17.2**
1. (a) To prevent acidity and gastric discomfort  
(b) To prevent heartburn/ gastric discomfort/ morning sickness  
(c) To prevent infections during delivery  
(d) To remain fit and active  
(e) To check whether adequate foetal growth is taking place.

**Notes**

Reena has conceived immediately after marriage deterioration of her and has also had two more children in quick succession which could affect her health and nutritional status. Besides their children may not get enough nutrition and attention from her. This could make their children irritable and more susceptible to infections and disease. Reena and Abhay may also feel more irritable and guilty as they will not be able to devote adequate time to all their young children with their high demands.

2. Advice to family and friends:
  - (i) Family, friends and Ritu may rationally discuss the pros and cons of the situation and come to a mutually agreeable decision.
  - (ii) If the final decision is to abort the child then it should be under proper medical supervision. Ritu should be given emotional and physical support.
  - (iii) If pregnancy has to be taken to full term, then friends and family should keep Ritu happy; make her feel comfortable and normal; encourage her to face life bravely; they should not allow Ritu to feel guilty; should encourage her to take nutritious meals; go for regular medical check-ups; and continue with her studies.



## 18

## CONCEPT OF DEVELOPMENT

Nimrat's parents have brought her new born sister Sufi home today. Nimrat marvelled that although Sufi was so small she was capable of doing many things on her own like breathing, digesting food, conveying her needs etc. Very soon Nimrat noticed that her sister was changing rapidly in many aspects. Let us join Nimrat on this journey. We shall learn about Sufi's growth and development in this lesson.



### OBJECTIVES

After completing this lesson, you will be able to:

- differentiate among basic concepts of human development;
- explain the principles of development;
- state the different types of development;
- recognize the role of heredity and environment in human development;
- distinguish between physical and motor development;
- monitor children's growth and development and assess if age specific milestones are achieved and;
- suggest activities to promote optimal development of children.

### 18.1 BASIC CONCEPTS OF DEVELOPMENT

Nimrat was very excited to watch her sister grow every day. Let us learn more about these changes

#### 18.1.1 Growth and development

Sufi was growing **taller and heavier**. This is known as '**Growth**', which refers



to increase in weight, height (length) and changes in body proportions. Growth takes place in the **physical aspect only**. It refers to quantitative changes e.g. it is possible to measure how tall a child has grown over a specific period of time.

Nimrat saw that over the past few weeks, Sufi had become more alert and responsive. While she was growing physically, she was also showing changes in her behaviour. All these are signs of **development**. In other words, we can say that development involves the processes that are genetically programmed as well as those that are influenced by the environment. Development takes place in **all aspects such as physical, cognitive, language, social, emotional and others**. For example child's increased ability to adjust in groups and make friends is a social aspect of his development.

The term '**development**' refers to qualitative changes in an individual such as change in personality or other mental and emotional aspects. However, very often growth and development are used interchangeably. The process of development continues even after the individual has attained physical maturity (growth). The individual is continuously changing as he/she interacts with the environment.

#### Difference between growth and development

- Growth is quantitative and development is qualitative in nature.
- Growth refers to physical aspects only; whereas development refers to all aspects such as physical, cognitive, language, emotional, social etc.
- Growth is limited to height and weight but development refers to all changes leading towards maturity.

Growth stops at certain period of life but development continues till death.

### 18.1.2. Maturation and Learning

Sufi at 8 months of age followed her mother crawling behind her. This was a moment of great happiness in the family. All the family members clapped for her and hugged her. Do you know why she was able to crawl? It was because her body was mature enough for this activity. This is **Maturation**. It means that the potential traits (for different activities like sitting, crawling, creeping, walking etc.) are present at birth in the individual and are controlled by heredity. This unfolds itself at the appropriate time.

**Acquiring new skills due to environmental stimulation and training** is known as **Learning**. Therefore, the development comes from effort, practice, and training. For example, bicycle riding will be learnt only as a result of effort, practice and training. Therefore, **maturation and learning** work together to promote the development of an individual. Both of these are important and are related to each other.



Notes

### 18.1.3 Heredity and Environment

Sufi was born with grey eyes and black hair. She **‘inherited’** the colour of her eyes from her mother and her hair was like her father’s. When we use the term inherited, it means the traits which Sufi has acquired from her parents and grandparents. This is called **Heredity**. It provides the basis for the development of human personality. Heredity is what a person is born with. It is a specific combination of genes we inherit and is shown in characteristics like height and certain habits.

Parents of Nimrat and Sufi were very affectionate to them. They always encouraged them to explore their potential and served as good role models. They provided them with good books to read and toys to play with. **Environment** includes all aspects of the surroundings i.e. human and non-human such as parents, family, friends, school, neighbourhood, work place and socio- economic conditions to which the individual is exposed since birth. These factors influence the development of an individual. The child’s capabilities/potential are determined by heredity. But the extent to which an individual develops these capabilities depends upon the opportunities in the environment. For example, if a child has inherited talent for music, the talent cannot be developed unless the opportunities in the form of training in music are provided. It is therefore important that the children are given a chance to explore their potential and nurture their talent.



#### INTEXT QUESTIONS 18.1

**Rearrange the jumbled words. Find your answers from the clues given below. Justify your answer in one sentence.**

- No one taught me to crawl, but one day I showed my parents that I can do it.  
This is

**RTMUTAAONI** \_\_\_\_\_

\_\_\_\_\_

- I have learnt to make new friends, it refers to the term

**NPDEETEOMVL** \_\_\_\_\_

\_\_\_\_\_

- I have acquired the skill of skipping because my parents gave me an opportunity to do so

**NRAIELGN** \_\_\_\_\_

\_\_\_\_\_



- I am becoming taller and heavier and can be measured in centimeters and kilograms.

OTRGHW \_\_\_\_\_

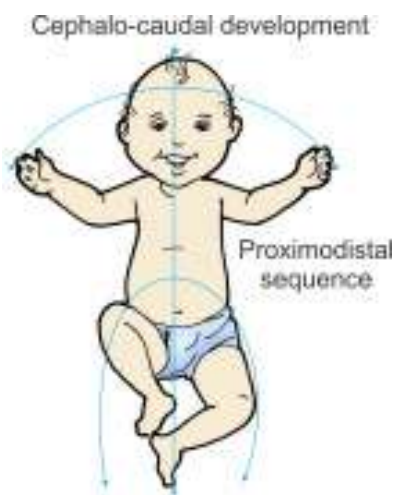


## 18.2 PRINCIPLES OF DEVELOPMENT

Although Nimrat and Sufi are born in the same family but they are not the same. They differ from each other. Yet, all aspects of their development have followed a particular pattern. Development is governed by certain principles which are applicable to all individuals. Let us learn about these principles in this section. The various principles of development are:

- Development involves change:** The human being is never static. From the moment of conception to the time of death, the person is undergoing changes. The major changes include changes in size and proportions, acquisition of new mental, motor, and behavioural skills. Each year along with increase in Sufi's height and weight, her mental abilities also increased. For example Sufi showed language development and better ability to reason and remember.
- Development follows a fixed pattern/sequence:** Each child may have a different rate of development. However, the development of all human beings follows a similar pattern, similar sequence or direction. Sequential pattern of development can be seen in two directions:

- Cephalo-caudal sequence:** means that development spreads over the body from head to foot i.e. individual begins to grow from head region down wards. Sufi first gained control on her head, then she could catch hold of objects, sit, crawl and later she could stand and walk.
- Proximodistal sequence:** means that the development proceeds from central part of the body towards peripheries. In this sequence, the spinal cord of the individual develops first and then outward



development takes place. For example, babies cut their front teeth before they cut their side ones. Functionally, Sufi could use her arms before her hands and use her hands before she could control the movement of her fingers.

3. **Development proceeds from general to specific:** In all the phases of pre-natal (before birth) development and post-natal (after birth) life, the child's responses are from general to specific. General activity proceeds to specific activity. For example when Sufi was less than 3 months of age and was shown a rattle, she would get excited and move her arms and kick her legs. This is a general response. At 5 months of age she would reach out to hold it in her hand. This is a specific response.
4. **Development is correlated:** All types of developments, i.e. physical, mental, social and emotional, are related to each other e.g. a child, who is physically healthy is likely to have superior sociability and emotional stability. The child develops as a unified whole. Each area of development is **dependent on the other and thus influences** the other developments. Sufi has appropriate weight and height for her age. She also has well developed language ability that enables her to communicate with everyone. She is loved by all and has positive self esteem.
5. **Development is predictable:** Because the rate of development is constant for a child, so it is possible to predict certain development outcomes at an early age. The X-ray of the wrist will predict the approximate height of the child.
6. **Development occurs at different rates for different parts of the body:** The development of different physical and mental traits is continuous but, all parts of the body do not grow at the same rate. In some areas of the body, growth may be rapid while in others, growth will be slow. For example brain attains its full maturity around the age of 6 to 8 years; feet, hands and nose reach their maximum size in early adolescence, whereas heart, liver and digestive system grow during adolescence also.
7. **Development proceeds stage by stage:** The development of the child occurs in different stages. Each stage has certain unique characteristics. There are individual differences in the rate of growth and development. Therefore, the age limit for different stages should be regarded as just approximate. **All children pass through these stages of development at or around the age levels suggested for them.** Speech gradually develops from cooing, babbling, monosyllabic sounds to complete sentence formation.
8. **Early development is more important than later development:** Early childhood experiences have more impact on the development of a child. Examples include nutritional, emotional, social and cultural experiences.



Notes





9. **Development is continuous:** From the moment of conception till death the individual is continuously changing. There is no break/discontinuity in development, in some stages development is fast and in some it is slow.
10. **There are individual differences in development:** Interaction between heredity and environmental influences leads to individual differences in the developmental pattern. These differences are caused by the genes one inherits and the environmental conditions like food, medical facilities, psychological conditions and learning opportunities.
11. **Development is the product of maturation and learning:** You have already learnt that maturation is unfolding of characteristics potentially present in the individual. For example, creeping, crawling, walking comes with maturation. These characteristics come from individual's genetic inheritance. Learning is the development that comes from efforts and practice. We know that interaction of maturation and learning is important for development. Maturation sets limits to development. It means because of limitation in heredity endowment, development cannot go beyond a certain point even when learning is encouraged. On the other hand, deprivation of learning opportunities also limits development. When environment limits opportunities, children will be unable to reach their potential.



### INTEXT QUESTIONS 18.2

Tick  the correct answer

1. Children who are taller for their age during early childhood years are taller during adulthood also. By this observation which of the following principle of development is proved.
  - (i) Development is the product of maturation and learning
  - (ii) Development is predictable
  - (iii) Rate of development remains constant
  - (iv) Early development is more important than later development
2. On the whole the sequence in which a child develops, follows two trends. Tick  the correct answer.
  - (i) Learning and Maturation
  - (ii) Constant and correlated

- (iii) Growth and development
  - (iv) Cephalo-caudal and Proximodistal
3. You did not start speaking on the day you were born, instead you developed speech gradually. This is a principle of \_\_\_\_\_.
- (i) development is predictable
  - (ii) development proceeds stage by stage
  - (iii) rate of development remains constant
  - (iv) development is correlated



### 18.3 INDIVIDUAL DIFFERENCES: WHAT IS MORE IMPORTANT, HEREDITY OR ENVIRONMENT?

One day Nimrat observed two children who looked identical. When she asked her mother, she told her that those children were ‘identical twins’ (developed from one zygote that splits and forms two embryos). On interacting with them, Nimrat found that although they have same facial features, they differed in their abilities and behaviour. The mother also explained that some twins may not look exactly alike. This is because they are ‘fraternal twins’ (developed from separate zygote that forms two embryos). The fraternal twins are as similar or different from each other as the siblings born at different points of time like Nimrat and Sufi.

Can you think of reasons for individual differences in pattern of growth, emotional sensitivity and other characteristics? Here comes the interplay of heredity and environment which we have learnt in section 21.1.3.

In studying various developments, it is difficult to separate the relative contribution of heredity and environment. Certain aspects of development may be influenced more strongly by heredity and others by environment in which one is brought up.



#### ACTIVITY 18.1

Observe and write at least two physical features that you share with your mother and father each?

Mother:

1. \_\_\_\_\_
2. \_\_\_\_\_



Father:

1. \_\_\_\_\_
2. \_\_\_\_\_

### 18.4 FACTORS INFLUENCING DEVELOPMENT

**Both heredity and environment are powerful factors** that influence an individual. While we can do very little about the genetic make-up (heredity) of an individual, the environment can be controlled to make it more favourable for an individual’s growth. A few of the environmental factors affecting development are nutrition, early stimulation and child rearing practices.

**Nutrition:** ‘We are what we eat’ – eating too much or too little – healthy or unhealthy affects our growth and development. Proper nutrition is essential for the healthy development of children in terms of physical and mental attributes (traits). A child must be provided with balanced diet on a regular basis to promote optimal growth and development. Non fulfillment of nutritional needs may lead to several kinds of disorders that affect not only their physical development but mental, social and emotional development as well.

**Early Stimulation:** A stimulating environment encourages the development of the child’s heredity potentials. For example talking to a baby or showing a preschooler pictures in story books, encourages his/her interest in learning words and a desire to learn to read. A stimulating environment encourages good physical and mental development, while an unstimulating environment causes the child’s development to fall below its potential. This factor can be an important reason for a child not to achieve his/her potential.

**Child rearing practices:** Children brought up by permissive parents tend to lack a sense of responsibility, to have poor emotional control and to become under achievers in whatever they undertake. Those brought up by democratic or even firm parents are likely to make better personal and social adjustments.

To sum up, inherited factors interact with environmental influences to determine children’s personality and individual differences in them.



#### INTEXT QUESTIONS 18.3

1. **Mention whether the following statements are true or false. If false correct the statement.**

1. The colour of an individual’s hair is a product of environment.

**True/False**



Notes

2. Good physical and mental development can take place if the child takes good nutrition and his environment is stimulating.

True/False

3. Each child is unique in terms of genetic makeup even if brought up in similar environments.

True/False

4. The best type of child rearing practice followed by parents is permissiveness.

True/False

## 18.5 TYPES OF DEVELOPMENT

We have been talking about development since the beginning of this chapter. All the examples cited above mention some or the other aspects of development. This section highlights the different types of development.

### 18.5.1 Physical development

Sufi has turned two. She enjoys climbing up and down the stairs and uses crayons to scribble on the wall. She is also able to do several other tasks. Now you already know that there is an immense increase in Sufi's abilities. She is not only gaining height and weight but is also able to walk, jump and make use of a spoon as well as crayons. Physical development is the most recognized and observable change in the life of a child. It includes the **gross motor skills**, such as walking, jumping, running, catching and the **fine motor skills** for painting, drawing, doing up buttons, using a spoon and writing. This development is largely dependent upon the child's health and nutritional status.

### 18.5 2. Cognitive development

Sufi like her peers is a very curious child. She keeps exploring her environment to gain more knowledge about it. She loves to play with toys and puzzles and other objects in her environment which increase her cognitive abilities like thinking,



Notes

reasoning, problem solving ability and memory development. **Cognitive development** focuses on how children learn and process information. As the children grow in age they can understand their environment by using their senses (seeing, listening, touching, smelling and tasting), registering information in their minds and efficiently retrieving it from their memory.

### 18.5.3. Social and Emotional development

Nimrat and Sufi’s parents and other care givers loved the children and spent adequate time with them. Hence the children feel very secure and show a sense of concern for people around them. These are the indicators of sound social development among children. The seeds of this social behaviour are sown in infancy itself. Young children also enjoy company of their friends. They develop social skills like sharing, cooperation, patience etc. in their interaction with peers and others.

Can you think of the times when you felt happy or sad, excited or angry? These are all different types of emotions. **Emotions** are the stimulated or moved state of mind. **Emotional development** is the ability to control and manage one’s emotions. It is important that children in their early childhood are surrounded by people who are emotionally mature and stable and are able to manage their emotions.



**Do you Know, that anger can be controlled, If you:**

- **get some space.** Take a break from the person you are angry with until your frustrations subside a bit.
- **think carefully before you say anything.** Otherwise, you’re likely to say something you’ll regret.



Notes

- **take a ‘timeout.’** Although it may seem cliché, counting to 10 before reacting really can defuse your temper.
- **use humour to release tensions.** Lightening up can help diffuse tension.
- **identify solutions to the situation.** Instead of focusing on what made you mad, work with the person who angered you to resolve the issue at hand.
- **practice relaxation skills.** Learning skills to relax and de-stress can also help control your temper when it may flare up.
- **get some exercise.** Physical activity can provide an outlet for your emotions, especially if you are about to erupt.

### 18.5.4. Language development

Interacting with others is very important for our day to day living. We all interact with each other through various methods of communication i.e writing, speaking, sign language, facial expressions, gestures, and several art forms. **Language** is an important medium of communication. It is a form of communication that uses words and symbols to express thoughts, desires and feelings.

All the developments that you have studied in section 18.5 i.e. physical, cognitive, social, emotional and language, in totality, can be termed as **overall development**



### INTEXT QUESTIONS 18.4

1. Find the suitable words from the jigsaw puzzle below and fill in the blanks in the following sentences.

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



Notes

1. Listening to a story will enhance a child's \_\_\_\_\_ development.
2. Putting the pieces of puzzle together is a part of \_\_\_\_\_ and \_\_\_\_\_ development.
3. Showing \_\_\_\_\_ is an indication of sound social development.
4. Severe malnutrition will affect \_\_\_\_\_ development.
5. Climbing a tree is a part of \_\_\_\_\_ development.
6. Children can communicate to their elders about their needs through their \_\_\_\_\_.



**ACTIVITY 18.2**

- a) Suppose you are Nimrat, write a letter to your cousin Ranjan to tell her any two aspects of Sufi's development that you enjoyed the most and one aspect of her development that you disliked.

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**18.6 PHYSICAL DEVELOPMENT**

**18.6.1 During Infancy**

We shall discuss the various aspects of physical development in this section.

- **Body size** during infancy is measured in terms of height and weight. During the first year of life, a baby goes through more changes in his/her body size than at any other time.



Notes

- Height:** Children of the same age vary greatly in height, but the pattern of growth is similar for all. An average Indian child at birth measures between 17 to 21 inches; at one year 28 to 30 inches, at two years the child is 32 to 34 inches tall (almost double his birth length). For the first year in the baby's life the length is recorded in lying down position using an instrument known as infantometer (Shown in the figure 18.6.1 below). Hence it is said that in first year we measure the length and not the height of the child.
- Weight:** An average Indian newborn weighs 2.5 to 3.25 kg (5-8 pounds). You know what happened after 3-4 days, when Sufi was born? She started losing some weight and her parents immediately took her to the doctor. The doctor told them that this was normal and by 7-10 days she would not only regain her lost weight, but, would also show an increase in her weight. At 4 months, she doubled her birth weight and at the end of the first year, tripled it. During the second and third year, she gained from 1.25 to 2 kg annually.



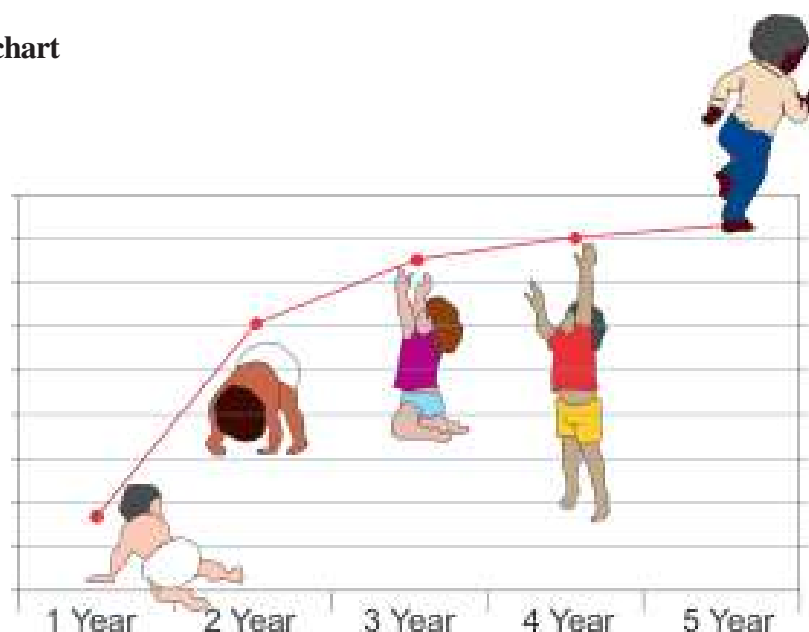
Infantometer



A baby weighing Machine

Fig. 18.6.1 Instruments for measuring a child's length and weight.

Growth chart







Notes

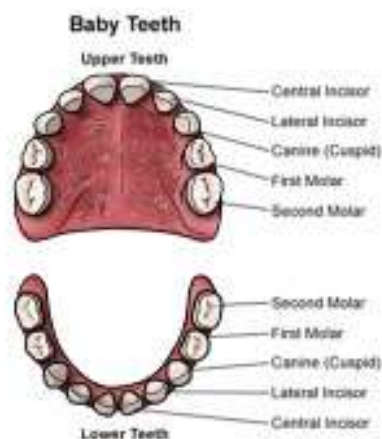
Chart for Girls			Chart for Boys		
Age	Weight(Kg)	Height(cm)	Age	Weight(Kg)	Height(cm)
Birth	3.2	49.9	Birth	3.3	50.5
3 months	5.4	60.2	3 months	6.0	61.1
6 months	7.2	66.6	6 months	7.8	67.8
9 months	8.6	71.1	9 months	9.2	72.3
1 year	9.5	75.0	1 year	10.2	76.1
2 years	11.8	84.5	2 years	12.3	85.6
3 years	14.1	93.9	3 years	14.6	94.9
4 years	16.0	101.6	4 years	16.7	102.9
5 years	17.7	108.4	5 years	18.7	109.9
6 years	19.5	114.6	6 years	20.7	116.1

(Source: [www.amrood.com/baby\\_height\\_weight\\_chart.htm](http://www.amrood.com/baby_height_weight_chart.htm))

- Development of Bones:** Bone development consists of growth in bone size and the change in their composition. **Ossification** or hardening of the bones mainly takes place during infancy. **Bones of the babies can be easily deformed** because they are soft. The shape of the head, for example, can be flattened if babies spend most of their sleep time on their back or the chest can be flattened if they sleep too long on their stomachs. Hence it is advisable to change the position of the baby every two – three hours.
- Development of Teeth:** Teeth start developing in the baby’s jaws during the third or fourth month of prenatal life but they don’t start appearing until the baby is 5 to 6 months old. Then they usually come out at a rate of about one tooth a month until the baby is 2 to 2½ years old.

The order of primary teeth eruption (teething age) is as follows:

- Central incisors (6-12 months)
- Lateral incisors (9-16 months)
- Canines (16-23 months)
- First molars (13-19 months)
- Second molars (22-33 months)





Notes

**Do YOU KNOW?**

- Every human being normally has two sets of teeth, the ‘temporary’ or “milk teeth” and the ‘ permanent teeth’.
- There are twenty temporary or milk teeth and thirty two permanent teeth.
- A child gets his/her first complete set of temporary teeth/milk teeth by the age of 3 years.
- At the age of 5-6 years temporary teeth start getting replaced by permanent teeth.

**18.6.2 During Early Childhood Years**

Growth during the early childhood (2-6years) is not as rapid as it was during infancy. During this period children improve on skills such as walking, running, balancing and self-dressing.

- **Height and weight:** Now overall increase in Sufi’s height and weight is slower than it was during infancy. She is expected to gain 2 to 2.5 Kg each year and about 2 ½ to 3 inches each year.
- **Body Proportions:** Sufi’s appearance is now changing to that of a young child. She is now four years of age and her chubby appearance is disappearing. Changes in body proportions for different parts of the body vary. The head growth is slow, limb growth is rapid and trunk growth is medium. Facial features remain small, but the chin becomes more pronounced and the neck elongates. By the time she will turn six years old, she would start acquiring body proportions of an adult.
- **Body Build:** Differences in the body structure becomes apparent for the first time in early childhood. As body proportions change, children’s bodies begin to take on the characteristics of endomorphic, ectomorphic and mesomorphic body builds.

**Do YOU KNOW?**

There are three types of body structure — Children who have **endomorph**ic build have a flabby, fat body build. Others have a **mesomorph**ic or sturdy muscular body build who have a tendency to be heavy, hard and rectangular; and some have the **ectomorph**ic build which tends to be long and slender.





Notes

- **Development of Bones during early childhood:** The bones ossify at different rates in different parts of the body following the laws of development. The muscles become larger, stronger and heavier with a result that children look thinner as early childhood progresses, even though they weigh more.



**ACTIVITY 18.3**

Select at least 10 children from your neighbourhood (5 boys and 5 girls) in 2-4 years age group. Measure their height and weight (with a weighing machine) and compare them with the growth chart provided. Plot a graph to understand the growth pattern of children.



A common way of measuring height



A common way of measuring Weight



**INTEXT QUESTIONS 18.5**

Tick  the correct answer.

1. If Sufi's birth height was 21 inches, by her second birthday she will be \_\_\_\_\_ tall
  - a. 32 inches
  - b. 34 inches
  - c. 42 inches
2. Preeti is seven months old; \_\_\_\_\_ incisors must have erupted in her mouth.
  - a. Central
  - b. Lateral
  - c. First molars



Notes

3. Skills such as running and writing are improved during \_\_\_\_\_.
  - a. babyhood
  - b. infancy
  - c. early childhood
4. Amit was born with a birth weight of 7 pounds, he will be \_\_\_\_\_ by the end of his first birthday.
  - a. 18 pounds
  - b. 14 pounds
  - c. 21 pounds
5. Tanvir and Manvir are 5 years old. The differences in their body builds have become apparent in \_\_\_\_\_.
  - a. infancy
  - b. early childhood
  - c. toddler

## 18.7 MOTOR DEVELOPMENT

### 18.7.1 Infancy

The word *motor* refers to muscular movements. By now we know that Sufi has developed immense control over different muscles of her body. This refers to **Motor development**. It is a voluntary movement of the body or parts of the body. This includes control over gross movements and finer coordination. **Gross motor development** refers to control over large muscles. These muscles help performing

Gross Motor Development during Infancy		Fine Motor Development during Infancy	
3 months	- Neck holding	4 months	- Grasping a rattle/ring when placed in hand
5 months	- Sitting with support	5 months	- Reaching out to an object and holding it with both hands
8 months	- Sitting without support	7 months	- Holding objects with crude grasp from palm
9 months	- Standing with support	9 months	- Holding small objects between index finger and thumb
11 months	- Crawling/creeping		
12 months	- Standing without support		
12 months	- Walking with support		
13 months	- Walking without support		
18 months	- Running		
24 months	- Climbing staircase		
36 months	- Riding tricycle		



Notes

functions such as crawling, standing, walking, climbing and running. **Fine motor development** involves the use of small muscles. Holding things like a cup or a crayon, grasping, turning the pages of a book, buttoning and zipping, drawing and writing are all examples of use of small muscles. As children grow, they not only refine the already acquired motor skills but also develop new ones. The most obvious change during the course of infancy is the acquiring of new motor skills, like sitting with support to sitting without support.



**ACTIVITY 18.4**

The following children are able to perform certain activities. Write Yes/No, if you think that these children have reached their milestones at the right age.

S.No.	Activity	Yes/No
1.	Asha is 5 months old, she sits with a support.	
2.	Sufi is eight months, she crawls.	
3.	Anchal does not walk at the age of 2 years	
4.	Rohan can climb stairs at 2 years	
5.	Surinder grasps a rattle at 4 months of age	

**18.7.2 Early Childhood**

**Development of Gross Motor Skills:** During the first four or five years, the child gains control over gross movements. Most of the fundamental motor skills like running, catching, can be performed with greater accuracy than these were performed during infancy. After five years of age, major development takes place in muscular coordination. The following gross motor activities and skills can be observed among the pre-school children:

- **Running:** At first, running is little more difficult than walking. By the age of 5 or 6 years, the child is able to run smoothly without any fall.
- **Jumping:** A child can easily jump by his fourth birthday. He/she can jump from a height of about 12 inches. The five-year-old has no difficulty in jumping over obstacles.
- **Skipping and hopping:** Skipping and hopping are modifications of jumping. Most of the children can skip well at the age of 6 years if provided opportunity.
- **Climbing:** Before a child is two years old, he can walk upstairs and downstairs with help, holding the railing of the stairs or the hand of a person.



Notes

The adult manner of step climbing, where the child uses his legs alternately is attained by four years of age, provided that a child has had ample opportunity to learn.

- **Tri-cycling:** By the age of two years, very few children can ride tricycles. Between 3 and 4 years, all who have had opportunity to learn can do so.
- **Ball throwing and catching:** By 6 years, most children become proficient, though there are vast variations in the skill at every age. For example at first, the child uses his/her whole body to grasp the ball. Then, he/she uses his arms only. Later he/she can catch the ball between the palms in a perfectly coordinated manner.

**Development of Fine Motor Skills:** As children move into early childhood years, their ability to manipulate the objects or work with hands is still not good. But as they play with small objects and perform activities, their small muscles develop and fine motor skills improve. Improved eye-hand co-ordination also helps in fine motor skills. During early childhood, the activities like tearing, cutting, pasting, playing with dough or clay, drawing, threading the beads, helps to improve the eye hand coordination and motor skills of the child. Following are some of the skills which a child can perform by the age of five years:

- **Self-feeding, dressing and grooming:** By five years, children can feed themselves like an adult, dress completely and comb their hair successfully.
- **Handwriting:** At five years, a child can write his/her name in capital letters. At six years, he/she can write the entire English alphabet if given the opportunity to learn them.
- **Copying:** Between the ages of 2½ and 5 years, most children show improvement in their ability to copy simple geometric figures.



**ACTIVITY 18.5**

Given below are some activities which can enhance two to three year old child's gross and fine motor development. Categorize these into Gross and Fine motor skills. Write them in the space provided.

Running Eating with spoon Climbing the stairs Jumping  
 Building blocks Drawing & colourin Skipping Hopping  
 Scribbling Throwing Tearing and pasting Kicking the ball

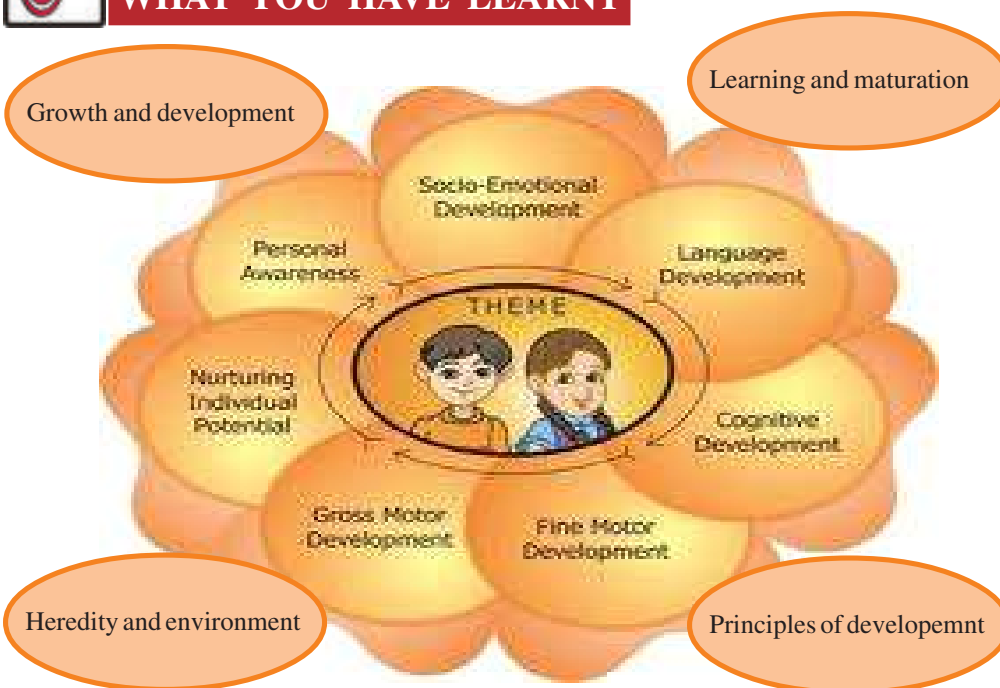


Notes

Gross Motor development	Fine Motor development



**WHAT YOU HAVE LEARNT**



**TERMINAL EXERCISES**

1. Define the following terms and give atleast two differences between them.
  - i. Growth and development,
  - ii. Heredity and environment.



Notes

2. Give four reasons for individual differences amongst children?
3. Good emotional development helps in establishing cordial relationships. Justify the statement in 60 words.
4. Distinguish between physical and motor development.
5. Your friend has bad hand writing. Name the aspect of development in which he is lagging behind? Suggest two activities to help him to improve his hand writing
6. Suppose a child in your locality is not provided with a stimulating environment in his home. Suggest activities which can help in promoting his cognitive development?



## ANSWERS TO INTEXT QUESTIONS

### 18.1

1. Maturation
2. Development
3. Learning
4. Growth

### 18.2

1. (ii); 2. (iv); 3. (ii)

### 18.3

1. False, product of *heredity*.
2. True
3. True
4. False, *democratic* child rearing practice.

### 18.4

1. Language
2. Cognitive and physical
3. Empathy
4. Overall
5. Physical
6. Emotions

### 18.5

1. (c); 2. (a); 3. (c); 4. (c); 5. (b)





## MY FAMILY AND I

Raghu, an orphan begs at a railway station. He often longingly watches couples accompanying their elderly parents and children while travelling. He wished he had a family who would love him and shower him with care, support and guidance. We all live with our loved ones and enjoy their affection and support. We call this close group our family. As we grow old we seek guidance and support from our family members. Most of our needs are fulfilled by the family. The environment in the family has influence on us and shapes our personality.

In this lesson you will learn the real meaning of the word family, its importance and functions and our need for family support and how does a family function and influences our lives.



### OBJECTIVES

After completing this lesson you will be able to:

- explain the meaning and importance of a family;
- elaborate the functions of a family;
- discuss the life cycle of a family;
- elaborate the role of a family in taking care of its members;
- explain the role of family in developing effective interpersonal relationships among the members of a family and
- analyze the role of family in transferring and adopting the values of a society.

### 19.1 WHAT IS A FAMILY?

Traditionally a family has been defined as a fundamental unit of society where two or more people are related to each other either by marriage, blood or adoption and share

a common roof, kitchen and source of income. Today this concept of a family is undergoing a change.

Take a look around you. You will find that people do not live by themselves. They live in a group which we address as 'family'. Just observe who all live in this group and what all they do. You will find that different groups have different structures. Some groups have people from three generations that is, parents, their married children and their children. Some other groups would consist of a married couple and their children. They are all living cohesively in a house and helping each other in carrying out the responsibilities assigned to each one of them.

When a family consists of a couple and their children, both natural (born to the couple) and adopted (those who have been legally taken in by the couple), living together under one roof it is called a **nuclear family**. When there is a family, where there are parents and siblings of the couple, the family is called a **joint family**. Look at figure 19.1. Can you now spot a joint and a nuclear family?



Notes



(a) Joint family



(b) Nuclear family

**Fig.19.1:** Types of Families

Whatever may be the type of a family, it is one of the most important institution in society. It is the first group that offers support, affection and help to each member of the group in carrying out its day to day functions.



Notes

**19.2 FUNCTIONS OF A FAMILY**

A family has many crucial functions to fulfil. Can you make a list of all that your family does for you? Compare it with the following list.

A family provides to all its members:

- protection from any danger to life
- opportunities for emotional bonding among its members,
- financial and emotional security
- facilities for preparation for life through education
- passing of socio-cultural values
- recreation



**ACTIVITY 19.1**

Below is the list of some important functions of a family. Think about your family and the functions it performs. Tick (✓) mark your response in the appropriate column.

Functions of a family	Always fulfills	Sometimes fulfills	Never fulfills
Protection from any danger to life			
Opportunities for emotional bonding among its members			
Financial security and emotional security			
Facilities for preparation for life through education			
Transmission of culture and values of life			
Recreation			

Before we discuss with you about how a family strives to achieve all the above stated functions, we would like you to get familiar with various stages in the life of a family. The requirements of a family are different at each stage and therefore its efforts to provide for these requirements is also different.

**19.3 FAMILY LIFE CYCLE**

Consider your own family. When your parents got married they started their family life and this stage is called the beginning stage of family life cycle. With the birth of eldest child, the family entered the expanding stage. When all of you would

get settled and run your own households, your parents, family would reach the contracting stage. These three stages are marked by a distinct pattern of family life.

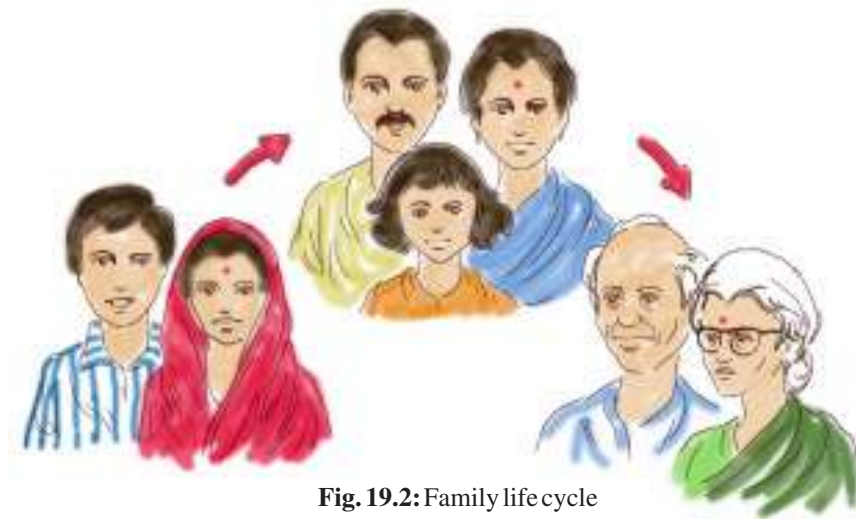


Fig. 19.2: Family life cycle

The stages of the family life cycle are:

- Beginning stage
  - independent young adult
  - marriage
- Expanding stage
  - parenting:
  - settling of children
- Contracting stage
  - retirement

### 19.3.1 Importance of Understanding the Family Life Cycle

An understanding of the family life cycle helps us to foresee the challenges and requirements of each stage. It is useful to have the right mental make up for dealing with the challenges and planning of priorities for each stage. This ensures a successful and smooth transition from one stage to another.

The understanding of the life cycle also helps to know about the nature of the environment in a family and its influence on the ultimate development of its members. Prior knowledge of challenges at each stage equips us with confidence to handle the emerging situations better and the result is a happy family system.

### 19.3.2. Stages in a Family Life Cycle

#### (i) Beginning Stage

The life cycle of a family begins with 'youth'. This is the stage of life when individuals gain their identity and emerge as independent young adults. At this stage they become



Notes



emotionally, physically, socially, and financially independent. They can now stay away from the family, look after their health and nutrition, form long lasting intimate relationships outside the family as well.

It is this intimacy that enables young persons to endure hard times and other challenges in the absence of their family. At this stage commitment, compatibility, trust and attachment are some of the essential ingredients for establishing intimate relationships.

Marriage is one of the most intimate relationships that a person forms. It is an important milestone in life and it should not happen before a girl is eighteen and the boy is twenty one years old. By this time it is expected that young adults would have had their basic minimum education and some preparation for a career. Traditionally, parents in India have been responsible for choosing the life partner for their son or daughter. Nowadays young adults also want to have a say in deciding the time of their marriage and choosing their life partners.

Preparation for marriage is important because marriage involves a lot of responsibility and changes in the lives of both boys and girls. Besides, the two young people who are getting married need to be emotionally, socially, physically and mentally prepared to face marriage. They need counselling sessions from experienced adults in the family on making adjustments, developing tolerance and patience, coping with stress and managing their emotions. Financial re-planning and health security (contraception, pregnancy and prevention of sexually transmitted infections) are the other important areas to be discussed.

Marriage brings the need to play a lot of new roles in the lives of the new couple and blending themselves comfortably with both the families. This is also the time when they are trying to know and adjust with each other. The adjustment is more on the part of the girl because she leaves her home of birth and loved ones behind to live with her husband. She also brings with her some behaviours, beliefs and values that have been shaped under the influence of her parents and which are different from those prevalent in her new home. An effective adjustment on her part would mean neither discarding nor imposing any one set of beliefs and values but to create a new option which is better, more relevant and practical.

To help her adjust in the new home, without any problems, members in this family can make her feel welcomed, accept her as an integral part of the family, give her time and space to understand the ways of her new home. They should also have realistic expectations and be non-critical. Can you visualize how these actions can help the new member entering the family?

Here are some guidelines to promote healthy relationship in a family.



Notes

Guidelines to develop healthy relationships	Things to Avoid
Talk to each other courteously	Talk rudely
Learn to listen to others	Talk only about yourself
Be conscious of your facial expressions and body language	Avoid objectionable body gestures and negative facial expressions
Help each other	Do not help
Work together	Like to work alone
Share responsibilities equally	Sleep/rest while others are working
Look after the sick and infirm	Do not care for others
Share your plans with other family members	Go out without informing
Express your appreciation	Criticize

It is important for a young couple to be sensitive to establishing good relationships at the beginning stage of the family life cycle. This will help in building a strong foundation for a happy family life.



### INTEXT QUESTIONS 19.1

- In one line justify how each situation helps in maintaining good relationships in a family.
  - Mother helps her daughter-in-law with the household chores.
  - A young bride volunteers to take the responsibility of preparing the evening meal.
  - A social worker provides sex education to a young girl before her marriage.
  - Son-in-law takes care of his wife's sick parents.
  - A younger sister offers to look after her niece while her brother and sister-in-law go out.
- List two important aspects of marriage for which you can prepare your younger sister/borther.

### (ii) Expanding Stage

You have already studied that the expanding stage of a family life cycle starts with the birth of the first child. Parenthood should be by choice since it brings many additional



Notes

demands and responsibilities with it. The couple should be physically, mentally, emotionally and financially prepared to handle these demands. Are they ready for the additional responsibilities? That is the core question they should ask themselves. Then they should take an informed decision in consulting with each other. This strengthens their bond and prepares them for the challenge of parenthood. Both husband and wife have to strike a balance between their individual responsibilities and their responsibilities towards each other and their families to manage this stage of life cycle well. During this stage the parents bear and rear their children. They provide for all their physical, emotional, educational and social needs. This is the most challenging stage in a family lifecycle.

**(iii) Contracting stage**

This stage of life cycle starts when the first child is ready to leave the home as an independent adult. This stage ends with the last child leaving the home or with the passing away of either of the couple. During this stage the couple may retire from their jobs, start pursuing some hobbies, participate in community services and enjoy the company of their grand children.



**ACTIVITY 19.2**

You may have observed a young couple in your family or neighbourhood with a newborn baby. Write two lines each on the following aspects of their life.

Sleep

.....  
.....

Food

.....  
.....

Socializing

.....  
.....

Entertainment

.....  
.....

## 19.4 TAKING CARE OF FAMILY MEMBERS

### (i) Care during Pregnancy

During pregnancy a family should ensure that the woman-

- eats nutritious food at frequent intervals
- takes adequate rest and exercise
- is happy and cheerful.
- visits her doctor regularly for monitoring the growth of the foetus and immediately get treatment for any problem that might be detected.

Becoming parents is exciting but stressful for both the parents. The nine months of pregnancy, child birth and the first year of child care can be quite exhausting for the parents, especially the woman. You may have seen some new mothers in your family getting tired because of the odd hours when the baby keeps her awake and occupied. If the couple is a nuclear family, this period is even more difficult as there is nobody to advise or provide relief by taking over, even for a short interval. Moreover, the new role of a parent, which has been added to the already existing numerous roles of the couple, is yet to be mastered. If the couple is not patient and committed to each other and have not learnt to adjust, there can be problems in their relationship.

The husband and other family members can show their concern and sensitivity towards the woman by taking on as many responsibilities as possible so that she can spend more time with the baby. They can also relieve her of some responsibilities of the baby so that she can rest or spend time to look after some household chores. Can you suggest some things that a husband can do to help? Yes! He can take care of the family laundry, dishes, dusting and he can make sure that things are kept in place after use and he can also bring groceries on his way back from work. The husband can also prepare meals, change nappies, baby-sit or prepare a feed when the wife is too tired. Can you give some more suggestions to the husband so that he can be helpful to his wife?

The wife must also understand that while she has to cope with an infant, the change is no less for the husband. She needs to give him time and space to get used to the new pattern of life and support him in every possible manner.

### (ii) Care during Infancy

The human baby is totally dependent upon parents for its care and protection. The essential tasks of caring for the baby include feeding, loving, clothing and bathing the baby. All babies need to be exclusively breast-fed by the mother because it is the right of a child. Breast milk is the healthiest food, fulfilling all nutritional requirements of a child. Feeding should be done exclusively till a baby is 6 months old. You have already learnt this in lesson 17- Life Begins. The child also needs



Notes





### Notes

to be immunized against certain life threatening diseases. The immunization schedule has also been explained in lesson-7 Health.

If husband and wife both are working, they require a support system to take care of the baby when they are not at home. They get distressed if the baby is not in good care. What are the options in such a case? Apart from availing maternity and paternity leave from work, the couple can consider the following alternatives:

- grandparents or relatives and friends take care of the baby or
- neighbours / friends managing each other's children or
- put the child in a day care centre/crèche or
- employ someone to stay at home and look after the baby

Remember, if the option is a crèche or day care center, it should be near the house or work place of either parent. It should be located in a clean, open and well ventilated place, run by qualified and capable people. In case somebody is to be employed to provide care at home, the background of the person must be verified. It should also be ensured, that the person maintains good personal hygiene, is methodical and capable of handling a baby and has a caring and loving nature.



### ACTIVITY 19.3

1. Visit a day care centre and observe the childcare services that it provides. The indicators to assess the quality of that day care centre are listed below. Check whether the following facilities are provided or not.

<b>Facilities</b>	<b>Yes/No</b>
i) Nearby	
ii) Trained staff	
iii) Provide hygienic food	
iv) User friendly toilets	
v) Provide toys/games (age appropriate)	
vi) Fenced	
vii) Away from road	
viii) Number of staff (teacher, child ratio)	
ix) Clean kitchen	
x) Filtered water	



Notes

- xi) Proper lighting and ventilation
- xii) On call doctor
- xiii) Flexible timings
- xiv) Play ground availability

### (iii) Care of Young Children

There are several factors that influence the growth of young children. They are discussed below.

- We often hear phrases ‘Like father like son!’ growth and development of a child is influenced by two factors, heredity and environment. Heredity or genetic factors are provided to the child by birth and cannot be changed. However, the environment in which a child grows up is totally managed by the parents and other care givers. Make sure that the environment provided to children is ideal as far as possible.

The environment consists of the following factors:

- **Early Stimulation:** Providing stimulation in early years of life is one way to achieve this. A child starts talking early and has a better vocabulary if the mother talks often to the infant. Similarly, the cognitive development is faster if the child is taken for outings to a park and allowed to play and interact with other children.
- **Play:** Environment also holds facilities for play and play contributes to all the facets of development, for example; physical, social, emotional, language and even moral. Infants upto two years are actively engaged in solitary games play. Children in the age group of 3-5 years indulge in make-believe play. In this kind of play, the children imitate adult roles or develop their own stories to play. It is therefore very important that adults around children exhibit behaviours that they desire young children to adopt. You must have often observed children playing ‘Home’ copying their parents.

Older children gradually start playing board games, computer games and other outdoor games. These games not only contribute to the physical, emotional and social well being of a child but also inculcate in them qualities like competition, cooperation, sharing, taking challenges, team spirit and leadership.

Children’s minds are constructively occupied through play? They do not necessarily need expensive toys to play with. Low cost toys made at home with locally available material can be as effective and interesting. Toys for children must be safe, inexpensive, durable, interesting and attractive.

- **Discipline at home:** Yet another component of environment is the discipline at home. As the child grows, it becomes essential to teach the child ‘self control’,



### Notes

which is taught through disciplining the child. Discipline helps the child to follow a certain code of conduct. It starts from an early stage of life that is, from the time of feeding and toilet training. Discipline helps the child to evolve a personal value system of what is acceptable and what is not. Parents become role models in order to inculcate good habits in their children. Parents generally use any one of the three parenting styles while disciplining their children and while interacting with them. These are as follows:

- (i) **Autocratic disciplining style:** Where emphasis is laid on restrictions and punishment to follow parents directions. Children from such families often lack self-confidence, become anxious about social comparisons and fail to initiate activities. They may have poor communication skills and may become rebellious later on in life.
- (ii) **Democratic disciplining style:** Children are allowed to be independent but are under the control of their parents. Children can express their opinion and present their arguments. The parents are warm and open towards their children. Children of such parents are socially well adjusted, responsible and are usually self-confident.
- (iii) **Permissive disciplining style:** Parents are totally uninvolved with their children. As a result of this, the children develop no self-control and lack social skills. They are unable to get along with others.

Compare these parenting styles and list their strengths and weaknesses. Which style were you brought up in? How would you like to bring up your children when you become parents and why? Since each child is different it is important to accept them as they are. It is the family's responsibility to encourage their natural talent and interests. Parents should not impose their own aspirations on their children.



### ACTIVITY 19.4

Make a simple low cost toy/ game, using material available at home for a child of age six months or two years.



### INTEXT QUESTIONS 19.2

1. Tick mark (✓) the most correct answer out of four given options at the end of each of the following statements
  - (a) When you are choosing clothes for your children see that these are
 

(i) simple and soft	(ii) absorbent
(iii) easy to wear and take off	(iv) all the above



Notes

- (b) Interesting and attractive toys help children in their
- |                          |                         |
|--------------------------|-------------------------|
| (i) physical development | (ii) mental development |
| (iii) social development | (iv) all the above      |
- (c) When children indulge in make believe play it helps in
- |                                       |                                 |
|---------------------------------------|---------------------------------|
| (i) development of their future roles | (ii) their physical development |
| (iii) disciplining them               | (iv) developing them socially   |
- (d) Democratic discipline helps in developing in children
- |                       |                     |
|-----------------------|---------------------|
| (i) social maturity   | (ii) self control   |
| (iii) self confidence | (iv) all the above. |
- (e) Permissive discipline does not develop in children
- |                       |                   |
|-----------------------|-------------------|
| (i) social maturity   | (ii) self control |
| (iii) self confidence | (iv) independence |
- List four characteristics of children that are the result of heredity.
  - Explain the meaning of early stimulation.

#### (iv) Caring for older children and adolescents

##### The school going child

A child of seven-eight years requires little support for eating, bathing and dressing. The roles and responsibilities of parents change when the child starts going to school. The child gradually starts moving towards independence. While children are gradually learning to manage they require support in academic tasks. In addition to the schools responsibility it is parents' responsibility to supervise and support the child in studies. It is always helpful if the child is given a separate space in the house to sit and study. It can be a place where he/she can keep all his things and also learn to be organized and orderly.



Fig. 19.3: school going children

Besides academics, children at this age also love to play group games indoors or outdoors. There should be adequate facilities to play in the school and around the living place. Can you say how these games would help the children?



## Notes



## ACTIVITY 19.5

- What kind of facilities children require to play outdoor games? Does your neighbourhood provide these facilities? How can you help?
- Find out if an indoor games facility can be created in your neighbourhood? What can your contribution be in organizing these facilities?

**Adolescents**

During this stage, adolescents strive for independence, want to take their own decisions and attempt to build an identity of their own. They also venture to establish their own value system. In the process, adolescents tend to challenge existing values and behaviours. Parents often find such situations difficult to deal with. If they put pressure on adolescents to follow family values, the situation becomes worse and encourages the adolescent to become aggressive. On the other hand a complete free hand or a permissive stand raises in them a feeling of neglect and betrayal. They feel that no body cares for them.



Fig. 19.4 adolescents

It is important that parents have a balanced approach while disciplining adolescents. They must set rules and limits and be firm and flexible according to the situation, keep all channels of communication open and provide emotional support. Trusting the adolescent is very important. Parents must learn to listen to the concerns of their teenager, suggest alternatives or solutions to their problems make them aware of consequences of actions and allow them to make decisions for themselves. However, on crucial issues mutually agreeable decisions lead to a warm and supportive atmosphere. Displaying confidence in the adolescent helps to reduce the generation gap and also strengthens family bonds. You will learn more about this in the lesson on “Adolescence: charms and challenges”.

**(v) Settling Grown up Children**

One important developmental task of adolescence is preparation for a profession or vocation. Every adolescent on reaching this stage is anxious and worried about this. Although parents are responsible for guiding their children in this regard, they are often themselves unaware of what needs to be done.



Notes



**Fig. 19.5:** Various Career Options

Preparation for a career should start early. By the time the adolescent reaches the senior secondary stage of schooling it is time to identify the profession one wants to enter into and also decide upon the necessary preparation for it. There are many new career options available for young people to choose today. There are also many channels of information to guide them in the preparation required for a career. Read the lesson “Adolescence: charms and challenges” for more information.

**(vi) Care for the Elderly**

Retirement can be a fulfilling and a happy time for people for various reasons. They are gracefully relieved from the responsibilities of their profession. They enjoy a good reputation in the society and are well provided financially. They have settled their children in professions and marriage. They have become grandparents and can leisurely enjoy the progress of their grand children.

However, retirement can be stressful also if an elderly couple has not cared their financial and physical well being. What do you think will happen, if they are without any support system and are financially not well off?



## Notes

Aging is a normal process of growing up and hence affects the body and causes decline in energy and all the abilities. Wrinkles, aches and pains are quite common in this age. The challenge is to accept aging as a normal process. They should gracefully, take care of themselves, slow down their pace and let go of responsibilities. They should take life easy, sit back and enjoy their days. If some people genuinely want to help them then they should let them do. They should thank them and bless them. They will be happy and would want to come back to help again.



Fig. 19.6: Elderly

## 19.5 ROLE OF A FAMILY IN DIFFERENT EFFECTIVE INTERPERSONAL RELATIONSHIPS

### 19.5.1 Family Relationships

Look at your family and other families around you. How do the family members get along with each other? It is important to analyze family relations. Family relations depend on the way every member behaves and interacts with each other. The well-being of each member of the family depends on the nature of these relationships. Cordial, harmonious relations and positive thinking can make life easier whereas quarrels and disharmony can lead to low self-esteem and negativity among members.

In a traditional Indian joint family where a large number of family members share common assets and liabilities, having a good relationship with every member is very important but difficult to establish. There can be people who are ambitious, self-centred, jealous or dissatisfied with their fate while there are others who look after every one's comfort and interest before they do anything for themselves. Can you visualize what can happen when a situation like this happens?

More and more people are moving to nuclear families as a result of migration and industrialization. Due to financial pressures, better education and employment opportunities, women are also contributing to family income. Do you think some extra efforts are needed by member of a family to establish good relations? You have already read that today many couples are performing dual roles as home makers as well as professionals.

Various factors that contribute in strengthening the relationship are –

- a clear understanding of one's duties and responsibilities

- feeling of empathy towards all family members
- a good interpersonal relationship by becoming sensitive to the other person's needs and comforts and putting his/her happiness before your own
- effective verbal and non-verbal communication skills
- displaying a genuine concern and love for others
- extending help to others whenever necessary
- being discreet and non-interfering in others' affairs

On careful observation you will find that all the factors listed above are an important skill for a healthy life. These skills are called **Life skills**. Life skills essentially help you to improve the quality of your life. Enhancing and using these life skills is the key to a successful family life. In contrast, mistrust, criticism, interference, self centeredness, lack of empathy and poor communication skills are factors that lead to disharmony and even breaking of relations.



### INTEXT QUESTIONS 19.3

1. Tick mark (✓) the factors that can promote family relationships-
  - i) lack of communication among family members
  - ii) accept the things as they are
  - iii) too many children in the family
  - iv) practice letting go of something small
  - v) love and cooperation among family members
  - vi) accept your shortcomings
  - vii) employment of mother outside the home
  - viii) forgive yourself and others
  - ix) too many expectations from others
  - x) maintain positive attitude and facial expressions

### 19.5.2 Values in Life

Values form the crux of our social environment. They help in establishing a just and equitable society. Traditionally, children observe their elders and imbibe values like respect for elders, honesty, truthfulness and humility. The values that we hold have been derived from our family, friends, neighbours, teachers, mass media and so on. Many of the values that you have are learnt from your own family members. Over the years, imparting value education seems to have taken a back seat. Now we see a gradual erosion of values in our society. However, just as we cannot accept pollution as a part of life and need to do something about it, we also need to prevent the degradation of values in our society.



Notes





## Notes

Imparting values education to children is a very important function of a family. We must provide a favourable atmosphere for young people to observe and imbibe those values which are generally accepted by society. They also need to constantly practise these values within the environment of their homes.

Parents teach values by directly telling their children what to do, and what not to do and by setting examples themselves. If parents tell their children to be truthful but tell lies themselves, what do you think will happen? The child will get confused and not be able to differentiate between right and wrong.

Go back to the beginning of the lesson and read about the functions of a family. You will find “emotional security” and “bonding” among the members of a family. These functions can be ensured when we take care of the elderly and the sick in the family; when we accord sensitive treatment towards our girls and women or when we do some community service.

The older members of the family, that is, the grandparents have reached a stage in life where their energy level and abilities begin to fail. They need special care and attention. It thus becomes the special responsibility of all in the family to look after them and make them as comfortable as possible. How can we do so? It is very simple if you follow the few tips given here.

- help them in doing tasks they are not able to perform because of their failing physical abilities
- spend time with them to make them feel comfortable
- provide moral support by being with them
- encourage them to take care of themselves
- be sensitive to their nutritional and medical needs
- involve them in decision making
- respect their views and opinions

In many families, even today, daughters and daughters-in-law face many restrictions and discriminations in areas such as nutrition, education, play and other outdoor activities, taking up jobs or even in expressing their opinions. When we talk of developing sensitivity towards the status of girls and women in our society, we are actually talking of equality of all human beings. As responsible young people, it is up to us to see that no discrimination is shown within our own families. We must also stand up and oppose it, wherever it exists. How can we do so?

- By showing equality in terms of nutrition, education, opportunities and sharing responsibilities.
- By recognizing their contributions to households, family income and attending to their needs.
- By recognizing that they too have their needs and need opportunities to fulfil them.
- By showing respect to them and treating them as equal human beings.

In this lesson you have learnt the importance of being a part of a family. We have understood the role a family plays in the overall well being of every member of the family. A typical family life cycle passes through three stages- beginning, expanding and contracting. Each stage has its own charms and challenges. All members of a family have to perform their roles to ensure healthy relationships and to be a useful member of the society.

A family provides unconditional love, care and support to all its members. We should appreciate this and not take our families for granted. Mutual respect for each other goes a long way in passing family values from one generation to another. You will see that use of these skills in many difficult situations helps you to sort out your problems more effectively. In the long run this enables you to be at peace with yourself and have a positive attitude in life. It will help you to be a positive member of your family and society. That is something all of us should aspire to achieve in life.

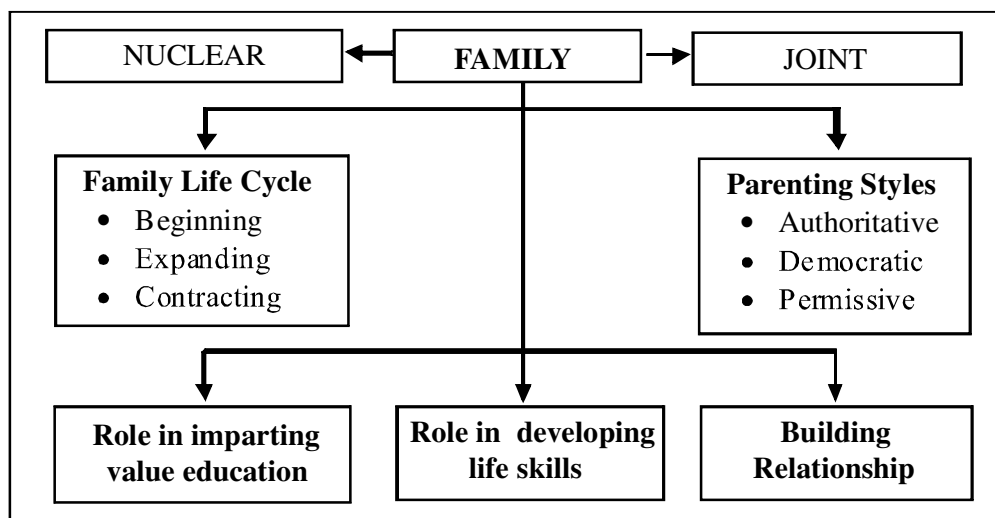


### ACTIVITY 19.6

- Make a check list of qualities for establishing good relationships.
  - List skills required for qualities mentioned in the above check list.
  - Tick on the skills that you think you have.
  - Identify the ones you need to work on.
  - Develop a plan of action to acquire those skills.
- Identify a person in the family or neighbourhood who does not have good relationships with people and find out the reason for the same. Suggest some measures for helping that person to improve his/her relations.



### WHAT YOU HAVE LEARNT





Notes



**TERMINAL EXERCISE**

1. What is a family life cycle?
2. How do loving and understanding parents help adolescents to grow into responsible persons?
3. What are the different parenting styles?
4. Why is discipline necessary in family.
5. How can a family help a newly married girl to adjust in her new house?
6. Compare the environment for growing children in extended families with that of a nuclear family.
7. State the role of parents towards infants, school going children and adolescents to facilitate their development.
8. What are the values of life and how are they inculcated in the children in a family?
9. Uma got married to Rajan three years ago. She lives in a conservative joint family in a big city. In her family there are her husband’s parents and his unmarried brother Akash and sister Neha. Uma gets along very well with Akash but not with Neha. They are more or less of the same age.

If you were Uma how would you improve your relationship with Neha?



**ANSWERS TO INTEXT QUESTIONS**

**19.1**

1.
  - i) daughter in law gets positive vibes and softens towards her in-laws.
  - ii) it means helping each other and feeling good about each other.
  - iii) preparation helps in reducing tensions.
  - iv) wife’s parents feels happy and good and relationship improves
  - v) brother and sister in law feel good and want to do good to sister.
2.
  - i) making adjustments in personal life and accommodate the new family.
  - ii) give due respect to every one.

**19.2**

1. (a) (i) (b) (ii) (c) (iv) (d)(iv) (e) (iv)
2. Colour of the eye, skin, height, and body build
3. Providing ideal facilities for development to children in early years of life.

**19.3**

1. ii), iv), v), vi), vii), viii)



20

## ADOLESCENCE: CHARMS AND CHALLENGES

I am unique! Nothing can happen to me! Will I be tall enough! I can change the world! Nobody understands me! Do these statements sound familiar? At what age do you remember having such thoughts?

Adolescence is a crucial period of life between childhood and adulthood during which an individual experiences a range of emotions, very confident about certain things and unsure about others. It takes some time and efforts to become comfortable with the changes taking place in one's mind and body. These changes make this phase of life very exciting. In this lesson, you will learn about the charms and challenges of adolescence and the ways to manage many issues related to it.



### OBJECTIVES

After completing this lesson, you will be able to:

- explain the physical changes during adolescence and learn to manage them effectively;
- explain the emotional and social changes during adolescence and develop a positive self concept and self esteem;
- explain the social changes during adolescence;
- enhance skills to respond positively and responsibly to various situations;
- examine the characteristics of cognitive development during adolescence deal effectively with different influences from peers, adults, media and social norms;
- recognize the importance of planning for a career



Notes

## 20.1 CHARACTERISTICS OF ADOLESCENCE

So what is adolescence? Adolescence is the transitional stage between childhood and adulthood. It is the age between 10-19 years. Though the timing and pace of changes may vary among individuals, these are marked by physical, emotional, social and cognitive changes. Why do you think these changes take place?

These changes are initiated by hormonal changes in the body and are a natural part process of growing up. These changes prepare adolescents for adult roles and responsibilities, so they should be accepted and celebrated. You shall learn more about these changes. These can be broadly categorized as:

1. Physical development
2. Emotional Development
3. Social Development
4. Cognitive Development

### 1. Physical development:

Physical development during adolescence begins with puberty which means beginning of sexual maturity. This period is marked by physical growth and change in body shape. During this period almost 75% of adult height and about 50% of adult weight is gained. You must be aware that every individual has unique structure which is influenced by several factors such as heredity, environment and nutrition.



Fig 20.1 (a): Physical Development in Girls

During adolescence, both boys and girls experience physical changes but some are specific to boys and some to girls. These have been listed in Table 20.1

**Table 20.1: Physical Changes during Adolescence**

Common to boys and girls	Specific to boys	Specific to girls
<ul style="list-style-type: none"> <li>• Increase in height and weight</li> <li>• Growth of underarm hair</li> <li>• Growth of pubic hair</li> <li>• Pimples / acne</li> <li>• Development of reproductive organs</li> </ul>	<ul style="list-style-type: none"> <li>• Broadening of shoulders</li> <li>• Deepening of voice</li> <li>• Development of facial hair</li> <li>• Increased muscular development</li> <li>• Nocturnal emission</li> </ul>	<ul style="list-style-type: none"> <li>• Growth of breasts</li> <li>• Broadening of hips</li> <li>• Menarche</li> </ul>



Notes



### ACTIVITY 20.1

Recall and Mark Tick (✓) the physical changes you experienced around the age of 15-16 years in the table 20.1 given above.

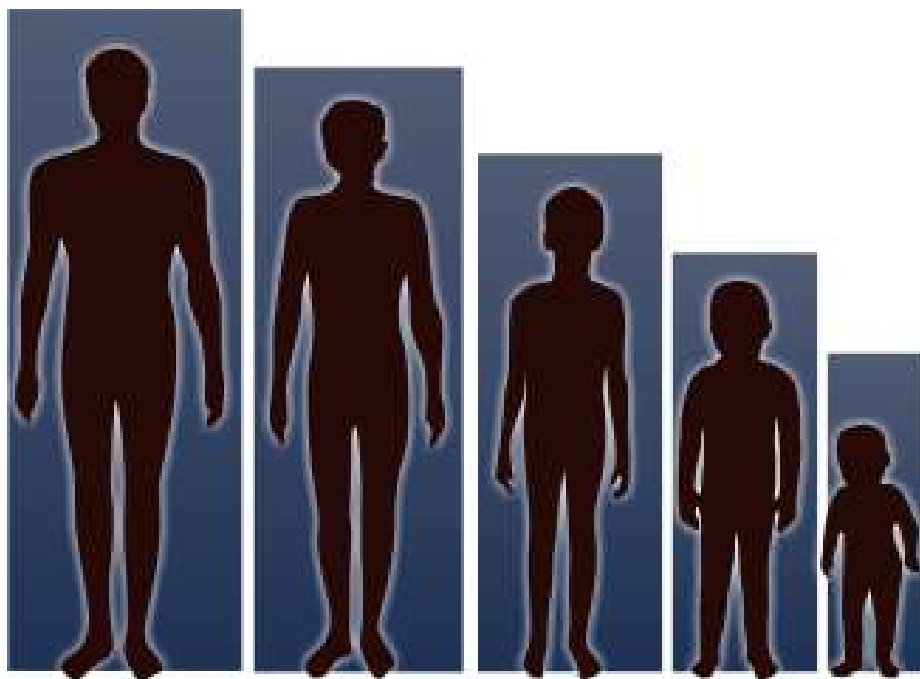


Fig 20.1 (b): Physical Development in Boys



**Notes**

Among girls menstruation usually begins (menarche) between 9-16 years and stops around 45-55 years of age (menopause). Menstruation is a cycle of 28 days which may vary from 21-35 days. Now you will learn what menstruation is

During each menstrual cycle, one ovum matures and is released by the ovary. This is called *ovulation* that occurs around mid cycle. Before the ovum leaves the ovary, the uterus builds up its inner lining with extra blood and tissue. If the ovum meets with sperm, (in case of sexual intercourse) it is fertilized and conception takes place. In that case, the lining of the uterus supports the growing foetus (baby).

But when the ovum is not fertilized, the uterus no longer needs the extra blood and tissue. The uterus therefore begins shedding its lining and the menstrual flow starts. It consists of blood, mucus and fragments of the lining in the uterus. This blood passes through vagina and is caught by using a clean cotton cloth or a sanitary pad. It is important to know that if the girl does not begin her menstrual cycle (periods) until the age of 16 years, she should consult a qualified doctor. Menstruation signifies the ability of a girl to become pregnant.

**DO YOU KNOW THAT**

- a girl can get pregnant before her menstrual cycle begins as she releases an egg before her first period?
- irregularity in menstrual cycle is common when girls just begin to menstruate?
- a missed period usually indicates pregnancy if a girl is sexually active?
- the menstrual cycle may be irregular due to stress, illness and inadequate nutrition?
- all girls should have an iron rich diet to prevent anemia. Girls who bleed heavily or are malnourished may also need iron supplements? You must have read about this in detail in lesson no. 2 Food and its Nutrients.

Although menstruation is a natural phenomena there are many myths related to it. Some of these have been clarified in Table 20.2

**Table 20.2: Menstruation: Myths and Facts**

Myths	Fact
Girls should not engage in any work during menstruation	Girls should continue with their daily activities as long as they feel comfortable. Infact, walking and exercising can help them get over cramps and pain.
Menstruation is an abnormal condition	It is a natural phenomenon although some girls may feel less energetic during this period. They may also get cramps,



Notes

	backache, headache, stomach ache or experience loss of appetite.
It is alright to take medicine to delay or hasten menstruation	One should avoid taking medicines to delay or hasten menstruation as these can be harmful to the body. If required take the advice from a qualified doctor.
Bathing during menstruation causes cramps	It is important to bathe daily. A warm bath can soothe and relax muscles, reduce pain. It is important to adopt good genital hygiene especially during menstruation. Clean sanitary napkins should be used during menstruation which should be changed every six hours. If a cloth is used instead of a sanitary napkin, it should be washed with soap and water and dried in the sun.
Women should not enter kitchen during the period of menstruation	There is no scientific evidence supporting restriction on working in the kitchen, handling certain food items like pickle or participating in social and religious functions.

These are only some of the myths and you may hear about many others. It is upto you to find the truth about these myths and make informed and responsible choices rather than follow these myths blindly.

Nocturnal emission is the release of excess semen from the penis during sleep. It is also known as 'wet dreams' or 'night fall'. The frequency of nocturnal emissions or nightfall varies from person to person. Nocturnal emission is a natural phenomenon hence there is no need for boys to get worried or feel guilty about it. There are many myths about nocturnal emission, some of which have been clarified below in Table 20.3

**Table 20.3: Nocturnal Emission: Myths and Facts**

Myths	Fact
Nocturnal emission makes one weak	It does not cause any sexual or physical weakness.
It is associated with sexual thoughts	It is a natural phenomenon and may not always be associated with sexual thoughts and feelings.





**Notes**

All boys experience nocturnal emission	All boys may not experience nocturnal emission.
----------------------------------------	-------------------------------------------------

However you should note that genital hygiene is important for both girls and boys. So what steps can they adopt for maintaining hygiene?

- Genitals should be washed with clean water after urination as infection can occur between the folds of the skin.
- Undergarments preferably made of cotton should be used.
- Undergarments should be changed normally atleast once a day and dirty undergarments dried in the sunlight.
- In stained undergarments should be changed immediately.
- Excessive sweating and subsequent infection can be avoided by keeping the pubic hair trimmed.



**ACTIVITY 20.2**

While growing up, you must have gone through a number of changes in your body. Did you feel prepared for these changes? If yes, how did it help you?

If not, do you think it is important to be prepared for them? Why? Who according to you could have helped in preparing you?



**INTEXT QUESTIONS 20.1**

1. Write two signs of physical growth which are common and two which are specific to adolescent boys and girls.

Common to boys and girls	Specific to boys and girls	
	boys	girls
1.	1.	
2.	2.	

2. Identify whether the following statements are True/False. Give reasons for your answers.

(i) Children should not be educated about the changes during adolescence as it may distract them.

(True/False) \_\_\_\_\_



Notes

- (ii) Malini should not play outdoor games during menstruation.  
(True/False)\_\_\_\_\_
- (iii) Sohail's brother makes him feel guilty by saying that nocturnal emission happens to those who have sexual fantasies.  
(True/False)\_\_\_\_\_
- (iv) Girls should eat iron rich foods.  
(True/False)\_\_\_\_\_
- (v) A girl cannot become pregnant before her first periods.  
(True/False)\_\_\_\_\_
- (vi) Genital hygiene is important for both boys and girls.  
(True/False)\_\_\_\_\_

During adolescence emotions become more pronounced due to the hormonal changes. To help them manage their emotions positively, it is important to understand adolescents' emotional development.

## 2. Emotional Development

Emotional development means developing an ability to manage emotions and to express them in positive and responsible ways. Almost all adolescents go through a stage of rebelling against restrictions. Angry outbursts, mood swings are quite common in this stage. Adolescents feel as if they are sitting on an emotional seesaw, feeling up one minute and down the next; feeling mature on some days and child-like on others. Though you must realize that each person is unique and has different responses to stress. Positive and healthy ways of responding to stressful situations help in decreasing the negative emotions. So how can you reduce your anger and cope positively to stressful situations?

- First of all you need to recognize your anger signals and accept that you are angry.
- Try to divert yourself or do something constructive to calm down.

Choose one or two of the options given in the box and see which one works best for you-





## Notes

However may be some other method works for you. Remember if you feel overwhelmed by a situation and find difficult to cope with it, do not hesitate to seek help from trusted sources like family or friends. Asking for help is not a symbol of weakness. In fact, it signifies strength and good understanding of your inner resources. Analyzing the situation, understanding its cause and avoiding it in future are steps that help in managing emotions better. Take the case of Ramu and his very close friend Rajinder. They had a misunderstanding which led to a fight. Rajinder insulted Ramu in front of everyone. Ramu felt very hurt. Undoubtedly this is a stressful situation for Ramu. There are several ways of dealing with the situation. Three possible responses are listed below:



Fig 20.2

**Response 1:** He feels that no friend is worth trusting and breaks contact with all his friends.

**Response 2:** He criticizes Rajinder with his other friends.

**Response 3:** Ramu sits with Rajinder and clears the misunderstanding.

Which do you think is the most sensible option? Give reasons for your answer.

Building of positive self concept is very important for the personality development among adolescents. Do you understand what **self concept** and **self esteem** means.

Identity comprises of distinctive characteristics of an individual. As adolescents develop a strong sense of identity and have strong views about issues. Identity of an individual is made up of 'Self concept' and 'Self esteem'.

**Self concept** means the way in which you see your strengths and weaknesses. Self concept is said to be low when you see only your weaknesses and it is high when you look at your strengths and want to improve yourself.

**Self-esteem** is your personal judgment of your abilities. In other words, if you have high self esteem, then you have more belief in your abilities. Positive self concept leads to higher self esteem. When adolescents begin to take pride in the abilities they possess and consider these as their assets, their self esteem goes up. One has to realize that success is the key factor in building positive self concept during adolescence. But how can you develop positive self concept and self esteem? For this let us do the following activity.



**ACTIVITY 20.3**

To know yourself better and develop positive self esteem, assess yourself on the following criteria. Ask your parents to assess you on the same criteria. Tick mark , Yes or No accordingly

S.No	Do you	According to you		According to your parents	
		Yes	No	Yes	No
1	accept your strong points and appreciate them?				
2	acknowledge your weaknesses ?				
3	try changing everyone ?				
4	indulge in self pity ?				
5	seek advice when needed of a trusted friend or a trained counselor ?				
6	realize that certain physical aspects in you cannot be changed ?				
7	appreciate others and be genuine and honest in your appreciation ?				
8	eat healthy and exercise ?				

After listing your positive qualities how did you feel about yourself? Which of the above points do you think help in developing a positive self esteem? With or without the help of your parents, develop a plan of action for yourself to overcome your weaknesses. Write your answers in the following columns. One has been done for you.



Fig 20.3

My weakness according to		Plan of Action
Me	My parents	
1. I don't share my problems even if they are beyond my control	Shares only some problems and that too almost at the last minute	1. I will share my problems and take timely advice from either my parents or if need be from a trusted friend or a trained counselor.
2.		2.
3.		3.
4.		4.



Notes



Notes



INTEXT QUESTIONS 20.2

1. Nasreen is the best athlete in her village and has won many awards at both district and state level. For the past two years she has been practicing very hard for the coming district athletes meet. She is very upset and wants to know that she is not shortlisted for the same. Given below are three different ways in which Nasreen can try to find why she has not been shortlisted for district athletes.

**Option 1:** Nasreen argues with the sarpanch of the village and accuses him of being unfair.

**Option 2:** Nasreen locks herself in a room and refuses to eat her meals.

**Option 3:** she goes to sarpanch and asks him the reason for her not being selected for district athletes.

Which do you think is the most sensible option? Give reasons for your answer.

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2. Neha got very angry when her parents did not allow her to go out with her friends. She threw her books on the floor, shouted at everyone and refused to eat her food.

If you were Neha, what would you have done to convince your parents? Please suggest at least two methods.

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3. Sudha is very conscious of her dark complexion. She avoids interacting with people around. Give suggestions to Sudha which can help build a positive self esteem.

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Fig 20.4



Notes

### 3) Social Development

Social development refers to the interaction of adolescents with their family, peers and others. As children transform into adolescents and later to adulthood, their social relationships undergo many changes.

“Who am I?” Am I an adult or a child? This is one question to which an adolescent is always seeking an answer. At one minute their parents tell them “You are not a child any more.” and the next minute they are told “Go and play, we adults are discussing something.” Such statements often leave them confused as to the status of their identity i.e. whether they are adults or children.

At this stage adolescents develop a strong sense of selfhood and have their own views and feelings about various issues. In their effort to become independent and develop their own identity they slowly start taking their own decisions. Parents can enable their children form an identity and become independent individuals by treating them as responsible young adults.

During this period the relationship adolescents share with their family and peers go through a major change. Let us study more about these changes.

#### 3.1 Relationship with the family

As adolescents start distancing themselves from their families, they start valuing their peers more than before. They often look to their peer group for approval and may even change their behavior to win their approval.

Adolescents start seeking privacy and like to spend lesser time with their families. They dislike any restrictions imposed upon them. Parents may find it difficult to accept these adults like characteristics of their children where they ask questions, reason and sometimes argue rather than obeying them blindly. Parents may feel that their adolescent children no longer value their opinions. This may not



Fig 20.4

necessarily be true as, the nature of this relationship changes. In fact, adolescents need their parents time and counsel more than ever before. However it may be important to re-establish some of the core guiding principles for parent- adolescent interactions.

You must realize that parenting teenagers is not easy. It angers and frustrates parents to see their child slipping out of their control. They know their child cannot foresee the consequences of his/her actions. In fact, some parents worry that their child is not



**Notes**

growing into a responsible person and worry about their future. This leads to disagreement and conflict.

Similarly, adolescents also have the responsibility to listen to their parents' opinions, think through the suggestions carefully and then put forth their views and feelings clearly and in a respectful manner. They must learn to express their thoughts and feelings in a clear, honest and respectful manner without putting down either themselves or the other person. Effective communication is a two-way process in which everyone concerned, has not only the right to express their views but also to be heard respectfully.

Following suggestions would help develop a closer bond between you and your parents.

- You must share your feelings with your parents and establish an open channel of communication. Both you and your parents should listen to each other's opinions, think through each other's suggestions carefully and then put forth views and feelings clearly in a mutually respectful manner.
- You must be as courteous to your own parents as you are to the parents of your friends.

Gradually as you grow older your parents also start understanding and accepting the changes in you. For a healthy relationship you need to understand your parents.

Following activity would help you to do that.



**ACTIVITY 20.4**

Ask your parents about five things that they liked to do with their friends when they were adolescents. Now compare it with what you like to do with your friends.

What your parents did with their friends		What you do with your friends
Mother	Father	

Pick the activities which are similar. Now share the experiences with each other.

Did this activity help you to understand your parents better? If yes, how?

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What can you as an adolescent do to improve your relationship with your parents? You must remember that your parents love you and have your best interest in mind. They are concerned for your safety and security. However, you do not need to have exactly the same opinion as your parents.

Following suggestions would help develop a closer bond between you and your parents.

- You must share your feelings with your parents and establish an open channel of communication. Both you and your parents should listen to each other's opinions, think through each other's suggestions carefully and then put forth views and feelings clearly in a respectful manner.
- You must be as courteous to your own parents as you are to the parents of your friends.



### INTEXT QUESTIONS 20.3

1. Neha is 13 years old. She feels her mother does not love her anymore. She is not allowed to go out with her friends and has frequent arguments with her mother. Suggest two ways in which Neha can improve her relationship with her mother. Could you also recommend two ways in which Neha's mother can contribute towards improving the relationship with her daughter?
2. Adolescents are often confused whether they are children or adults. Narrate any incidence from your personal life to justify this statement.



Fig 20.5

### 3.2 Relationship with peers

Peer is defined as a person of equal age, abilities, qualifications, background or social status. As you must be aware adolescents give a lot of importance to their peers. The opinion of their friends seems more important than that of anyone else. Since all of them are going through similar experiences they feel close to each other.

Peer pressure can be both positive and negative. Positive peer relationship helps in social development as well as formation of self-image and self-esteem. These relations act as a safety net during difficult circumstances. Peers can act as positive role models and can also encourage healthy behaviour.



Notes





### Notes

Teenagers who feel isolated and rejected by their friends and family or those who come under the influence of negative peer pressure are more likely to indulge in anti social activities like thefts, substance abuse, gang involvement, smoking, drinking, etc.



Fig 20.6: Healthy Peer Relationships



### ACTIVITY 20.5

Here is the case of Sujit and Manoj. They would often bully Sharad, a fellow learner to lend them money. When he would refuse, they would hit him. He never shared this with anyone. One day they snatched his purse and ran away.

He had to walk home as he had no money for the bus. Sharad's neighbour, Abid who had witnessed the whole incident, asked him to bring it to the notice of the village elders. Sharad hesitated but agreed when Abid offered to accompany him.



Fig 20.7

- Q1. Pick one example of positive and one of negative peer influence in this story.
- Q2. Why do you think Sharad did not complain against the bullies for so long?
- Q3. What difference did Abid's intervention make to the situation? Discuss these questions with your friends and family and try to find the answers.

Developing healthy relationships and friendship is one of the most charming aspects of adolescence. Positive peer relationships are based on mutual respect and appreciation. Here are some ways to maintain healthy relationships.

- ✓ Communicate effectively. Practice how to express your thoughts and emotions in socially acceptable ways. This involves learning to listen, speak clearly, politely and seek others opinion and voice your opinions. Listening to others forms an important part of effective communication.



Notes

- ✓ Cultivate social skills like anger management, fairness, and sensitivity.
- ✓ Develop empathy; treat people as you would like to be treated by others.
- ✓ Spend time together and keep working on your relationships by practicing the skills to resolve conflict and disagreements effectively.
- ✓ Offer constructive criticism. Treat each other fairly and forgive one another after clarifying the misunderstanding.
- ✓ Be generous and supportive. Be prepared to listen/talk to your friends in times of trouble.
- ✓ Maintain mutually respectful behaviour. Remember, there is no room for bullying in a healthy relationship.



### INTEXT QUESTIONS 20.4

Complete the following statements giving appropriate reasons:-

1. Engaging in high risk behaviours is dangerous because \_\_\_\_\_  
\_\_\_\_\_.
2. Keeping communication channel open with parents is important because \_\_\_\_\_.
3. During adolescence, friends become very important because \_\_\_\_\_  
\_\_\_\_\_.
4. Positive peer pressure should be encouraged because \_\_\_\_\_  
\_\_\_\_\_.
5. A clash between parents and adolescents could occur because \_\_\_\_\_  
\_\_\_\_\_.

Development of intellectual skills are one of the most important step for adolescents to achieve their potential. This would be dealt in cognitive development.

#### 4) Cognitive Development

Cognitive development refers to the development of brain which facilitates adolescents to perform more complex mental functions. It is concerned with the development of a person's thought processes it deals with the way these thought processes influence how we understand and interact with the world. These have been briefly explained below.



**Abstract thinking:** at this stage, they can imagine the impossible. For example if they hear idioms like *A Leopard Can't Change His Spots*, they can now understand that it means that *a person cannot change his/her basic nature*. Because of this ability they can also write poetry and understand humour.

**Personal fable:** At this stage adolescents think that they are unique and nothing bad can happen to them. This is one of the reasons for them to take risks. Adolescents are energetic and spontaneous in nature and try new things without fear. This may include helping peers and family, serving the country which leads in positive self identity. The ability to try new things can be used positively to bring about a positive change in the society. However experimenting with drugs, sex and many more such activities like driving at high speed, pillion riding without helmets; etc can often result in serious negative consequences.

**Systematic thinking:** they are able to think systematically. If asked to take a decision, they are able to list and examine various alternatives and the consequences of each alternative, before choosing any one. For example, while planning for a family holiday adolescents can list out suitable options available; examine them keeping in mind weather condition, location, best time to go, ways to reach the destination and places to see and accordingly decide and plan a holiday.

**Idealism:** One of the main characteristic of adolescence is idealism. They have a strong sense of right and wrong. They develop awareness about themselves and their surroundings with a strong sense of pride. Often idealism leads to positive thinking and actions. For example, many youngsters extend a helping hand in difficult situations like disaster, conflict.

**Imaginary audience:** Adolescents imagine that everyone is watching them. For example; if there is a very small hole in their T shirt, they think everyone can see it. They become more aware of their surroundings.



### INTEXT QUESTIONS 20.5

- 1 Enumerate any two characteristics of cognitive development of adolescence.
- 2 Adolescents are often reckless and refuse to wear ill fitted clothes. Give reasons for their behaviour.

## 20.2 EFFECT OF CULTURAL AND SOCIAL NORMS

Social norms are a set of rules and expectations by which a society guides the behaviour of its members. You can see the effect of changing social and cultural norms on all aspects of life. These norms affect the way we behave, talk, dress or conduct personal

relationships. Even our gender roles which were governed by social norms are changing and evolving. For example, what women were expected to be 20 years ago is very different from the current expectations from women. Similarly, the roles men had adopted in the past are very different from their current role. Women are no longer restricted to household chores or men are not the only earning members of the family. Both men and women are gainfully employed and both participate in household chores. Hence, the concept of gender is dynamic and is different during different ages.



Fig 20.8

Adolescents are influenced by social norms and culture of the world. They copy popular language, clothes, music and dance. In their desire to belong, they adopt whatever is popular among their peers or is fashionable in media. It is alright to conform to the peer group. Sometimes you may not agree with a particular trend.

Here are some suggestions as to how to be more assertive and say no without feeling guilty. Next time you come across a tricky situation, try any of these.

1. Do not give in to societal peer pressure. Don't fall under the impression that just because "everyone else is doing it", that you should do it too.
2. Use the word "no" when declining rather than "I can't" or "I shouldn't".
3. Avoid feeling guilty and avoid saying "I'm sorry".
4. Stop others from making excessive demand on you.
5. Make sure your body language does not contradict what you are saying.
6. Make direct eye contact with the other person.
7. Not give other people reasons for every action we take
8. Maintain your dignity in relationships
9. Let other people know how you are feeling

Many times you may find yourself in situations where it becomes difficult to say no. In each situation you may use any of the following techniques:

- Ignore the question or statement and walk off.
- Pretend as if you have not understood anything
- Change the topic



Notes



- Assertively convince to say no
- Make an excuse. For example, I'll join you some other day

Remember to use a different technique each time. Do practice these skills before you use them.

### **20.3 INFLUENCE OF MEDIA ON ADOLESCENCE:**

Mass media like television, newspapers, magazines, films, radio and internet have both positive as well as negative influences on adolescents. Media not only creates awareness about various issues but also provides opportunities for them to participate in various programs on television and radio, publish articles in newspapers, magazines, websites; etc. By promoting sports, social work, media can motivate adolescents to take up such activities.

On the other hand media promotes certain stereotype images and views that may have a negative influence on adolescents. Constant exposure to sexual images, violence and commercial advertisements debasing women can lead to negative impact on young minds.

Adolescents often over-identify with famous people and idolize stars, professional athletes, movie actors, and television personalities to the point of apparent loss of their own individuality.

Actors and models influence their idea of a perfect body shape. Most of the adolescent girls watch their diet which leads to increasing number of eating disorders. In boys too there is an alarming increase in obsessive weight training and the use of steroids and dietary supplements that promise bigger muscles and more stamina for lifting. Excessive weight loss can lead to loss of stamina, decreased resistance to diseases, and irregular menstrual cycle (in case of girls). Indiscriminate use of steroids without medical advice has many harmful effects.

So what can be done to control this? Remember it is entirely up to you to decide what to watch or read. Very soon you will be an adult. It is important that you make responsible choices based on correct information.

Parents can reduce the negative effect of media by:

- Helping you distinguish between fantasy and reality
- Discussing the consequences of violence and risk taking behaviour
- Empowering adolescents with critical thinking skills to filter the messages they receive and good decision making skills to watch age appropriate content.

## 20.4 PREPARING FOR A CAREER

Towards later adolescence comes the time when you need to choose and prepare for a career.

You must be aware that you have to face tough competition to secure a good job. Everyone hopes to do something that they enjoy and also earn a decent livelihood. Very often, you are expected to join your parents in their profession. But if you have other interests, you should explore them. Remember whatever you do, you must try to do your best and excel in the chosen field. For this you may have to put in extra labour and effort. After all hard work always pays in the long run. There are many options available besides the usual professions of doctor, engineer or architect. Do try to explore other avenues available around you, at your place of residence. You can get relevant information from the following resources:

- ✓ Weekly magazine sections of many newspapers offer guidance on vocational choices, the preparation needed for them, the concerned institutions and how to get there.
- ✓ A number of career guidance websites are also available. You can refer to [http://india.gov.in/citizen/career\\_guidance.php](http://india.gov.in/citizen/career_guidance.php) hosted by Government of India to assist young people in making informed career selection.
- ✓ Parents and employees from specific fields can give first hand knowledge about their careers.
- ✓ An internship or on the job training will also equip you with necessary job related skills.



### TERMINAL EXERCISES

1. Explain the physical changes that are common to both adolescents boys and girls?
2. Differentiate between emotional and social changes during adolescence
3. Giving an example explain how positive self esteem helps in better performance.
4. How would systematic thinking help in choosing a career.
5. Read the case study of three friends below and answer the given questions,

Mani and Ronny met Adil at a marriage party. They try to convince Adil to drink He does not want to offend his friends and risk his friendship. However



Notes



he does not want to drink and drive. He is in a delima, should he have alcohol with them or should he leave the party and go home?

- (i) What do you think Adil should do?
  - (ii) What should Adil do to convince his friends not to drink as they will have to drive back home?
  - (iii) How else can Adil’s friend celebrate? Please give atleast two suggestions
6. Your 9 year old brother is watching a violent film. In what ways can you help him select an appropriate program?
7. Cite a situation where you experienced a conflict between what you wanted to do and what was expected of you. How did you resolve the situation?
8. Educate your friends on how to be assertive when being forced to do things against their wishes.
9. List various sources from where you can get information regarding your career.



**WHAT YOU HAVE LEARNT**





## ANSWERS TO INTEXT QUESTIONS



Notes

## 20.1

1. **Common signs**—increase in height and weight, hair in underarm and pubic area, increase in genitals.

**Boys**— Nocturnal emissions, increased muscular development, facial hair.  
(Any two)

**Girls**— growth of breasts, menarche, broadening of hips.

2. (i) FALSE- they should be prepared beforehand so that they do not get shocked and are prepared / relaxed for the forthcoming changes.  
(ii) FALSE – she can continue with all her normal activities.  
(iii) FALSE- it can happen otherwise too as excess of semen flows out in sleep.  
(iv) TRUE -Girls should eat iron rich foods.  
(v) FALSE – she can get pregnant before her first periods as ovum is formed few weeks before the start of menstrual cycle begins.  
(vi) TRUE -Genital hygiene is important for both boys and girls.

## 20.2

1. Option 3 is the best option. REASON- one should find out the reason instead of expressing anger as that would not solve the problem. May be by mistake her name was not there or she may not fulfill criteria for age bar.
2. Neha should ask them the reason for not allowing her. Understand their point of view. She should have not thrown her books, eaten her food and talk politely with all.
3. (i) Realize that certain physical aspects in you cannot be changed.  
(ii) spend time analyzing your strong points and appreciate your strengths  
(iii) do not indulge in self pity  
(iv) eat healthy and exercise.  
(v) take advice from a trusted friend or a trained counselor



**20.3**

## 1. Neha's role

- (i) confide in her parents
- (ii) see their point of view
- (iii) respect them and talk courteously
- (iv) participate in household chores with parents

## Role of her mother-

- (i) involve her in family discussions and household chores
- (ii) share problems
- (iii) understand
- (iv) talk openly about the issues
- (v) counsel her

## 2. Any incidence where your parents one minute tell you that you are child but very next minute they expect you to behave adult like.

**20.4**

Complete the following statements giving appropriate reasons:-

- (i) STD, HIV, behind bars, any other
- (ii) prevents misunderstanding between both parents and children
- (iii) they go through the same phase and understand each other.
- (iv) it encourages healthy competition and boosts their ego.
- (v) they do not talk freely / do not respect each other.

**20.5**

## 1. (i) personal fable – think they are unique

(ii) imaginary audience - think everyone watching them

(iii) abstract thinking- can imagine impossible, which is not true

(iv) systematic – can take all factors in mind before planning anything.

## 2. reckless —because of personal fable where they think nothing wrong can happen to them. Refuse to wear a defective dress —as think everyone can see the defect even if it is not noticeable



## ETHICS IN DAILY LIFE

What can be better than a hot cup of tea and a newspaper on a bright pleasant morning? But what do we read in the paper, news about greed, corruption, discrimination, robbery, injustice and many similar incidents. This often leaves us worried about our security and safety. India has always been regarded as a country of high moral and ethical values. Have we lost our value system or is it just a phase that we as a nation are going through? Doesn't it set you thinking about the changes happening in our society, country and ourselves?

All of us imbibe the same set of ethics and yet some of us discover unjust and unethical shortcuts to success. Is it always important to be ethically right? You shall find answers to these and many such questions in this lesson.



Fig 21.1



### OBJECTIVES

After reading this lesson, you will be able to:

- describe the terms 'values' and 'ethics';
- explain the need for values and ethics in everyday life;
- explain the importance of respecting both rights and responsibilities;
- recognize and value the dignity of labour;



## Notes

- apply the learnings to develop tolerance, empathy and positive attitude in life, and
- develop a personal code of conduct that balances your rights and responsibilities.

## 21.1 VALUES AND ETHICS

Asif was a taxi driver in a city. One day a passenger left his briefcase in the car. Asif noticed it only when he was going home for lunch. He did not know what to do. He thought of opening it to see if the name and address of the owner was given. When he opened the briefcase he was surprised to find many valuable documents and cash in it. He found a card with a name and address of the owner on it. He drove straight to the owner's house and returned the briefcase. The owner was grateful and rewarded Asif for his honesty.

This is a very rare quality. He could have kept the cash and thrown away the documents. It was his conscience that did not approve of this act and made him make the right decision. Honesty is the value that Asif holds. You must be wondering what are values? Where do they come from? Are values different from ethics and so on? You will get answers to your questions.



Fig. 21.2

Now you know that Asif is an honest taxi driver. Apart from being honest, he was also truthful and responsible. He was known not to have cheated his passengers. So, we can say that value is something which an individual holds to be an important one and it helps in the development of his conscience. Your conscience is your internal policeman. This policeman helps you to choose the actions that are guided by your value system.

Suresh was Asif's colleague holding a different set of values. He would often behave unethically and cheat his passengers. He would take them from a longer route or fix the meter reading to charge more. Many times, he would argue with Asif about his honesty. Asif would often tell Suresh that one should always follow the path of truth in personal and professional life. Every work place and profession has its own sets of ethics which should be followed by all. So we can conclude that it is on the basis of the values we hold, that we can understand the ethics of the workplace.

**Values** are ideas and beliefs we hold and are learnt from childhood. They are imbibed from our parents and immediate surroundings. Caring for others, for

example, is a value. Whereas, **ethics** test our values, it is the way we behave in difficult situations.



### ACTIVITY 21.1

As we go along the lesson, we will be evaluating some of the values we observe. Answer truthfully (Yes or No) how you feel in the following situations

- |                                                               |          |
|---------------------------------------------------------------|----------|
| 1. Returning what belongs to others upsets me.                | Yes / No |
| 2. Picking money from my friend's bag adds to my pocket money | Yes / No |
| 3. Honesty is rewarded in the long run.                       | Yes / No |
| 4. If I have some rights, I have responsibilities too.        | Yes / No |
| 5. My values help me to make correct decisions.               | Yes / No |
| 6. Doing my chores myself gives me satisfaction               | Yes / No |
| 7. I do not like my elders to advice me on every issue.       | Yes / No |
| 8. It does not bother me to see other people in trouble.      | Yes / No |

#### VALUES OF LIFE

It is important for each one of us to possess a set of values in order to maintain conducive atmosphere. A few of them are:

- Honesty and loyalty
- Respect for work
- Punctuality, regularity and discipline
- Courtesy and politeness with others
- Judicious use of resources
- Taking initiatives
- Efficiency in completing tasks

#### VALUES AT WORKPLACE

It is very important for an employee to possess a set of values in order to maintain a conducive atmosphere at the workplace. A few of them are mentioned below:

- Honesty and loyalty for the organization
- Respect for the work assigned
- Punctuality, regularity and discipline
- Judicious use of resources
- Courtesy and politeness with co-workers
- Efficiency in completing tasks
- Willingness to take up new tasks



Notes



## Notes

You may like to expand the list

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Don't you think that the choices we make in our everyday life are based on our personal ethics? It is the values that are the guiding factors for all our decisions. They are the basis for our actions and behaviour. Let us understand how important ethics are for a just and peaceful society.

### 21.2 NEED AND IMPORTANCE OF ETHICS

There are certain things that you read daily in newspapers - corruption, bribery, food adulteration, kidnapping, violence and murder. What is happening to our society? Why are people running after money by killing their conscience? There is a gradual erosion of values from the society. Few of us are engaged in accumulating wealth and gaining power through unfair means. Why are we allowing this to happen in our society? We can join hands to prevent the degradation of values in our society.

It is important that each one of us follows values in every sphere of life. What will happen to our society if values are not practiced? You can think of so many answers to this question:

- loss of life and damage to public property;
- break down of families;
- no law and order;
- crime and corruption;
- alcohol and drug abuse;
- abuse of women, children and other vulnerable members of the society and
- indiscreet use and wastage of resources.

There will be total imbalance in the society, if all its members do not practice values and ethics. Crime and chaos will rule and life will become difficult. Hence, it becomes our responsibility as an individual to live ethically.

### 21.3 RIGHTS AND RESPONSIBILITIES OF AN INDIVIDUAL

Ankita was a class ten student. She was rude and had no respect for her elders. She would neither help her mother nor would she listen to her father. Instead she



Notes

always argued with them on small issues. She would also be very rude to her neighbours. Her parents always wanted her to act in a responsible and a mature manner.

We all live in a family which nurtures us as individuals. We develop our abilities, give and receive love and dare to dream. Family life provides an individual an opportunity to learn and to establish and maintain healthy relations. Important social skills like caring, sharing, tolerance and empathy are all learnt in our home.

One day Ankita's family decided to make her realize her mistake. Ankita woke up late and began rushing around for getting ready for school. She shouted at everyone for her things, but no one listened to her. She somehow managed to get ready and reached school late. She was scolded for being late to school.

When Ankita came home in the afternoon, her mother sat by her and asked her how she felt about the morning experience. Ankita realizes that if she was rude, disrespectful and uncooperative, others would treat her in the same way. Have you ever behaved like Ankita? How would you feel if your family members would behave the same way as they did with Ankita?

Ankita realized her mistake and promised her mother to act responsibly in future. Our responsible behaviour brings a lot of satisfaction to us and as well as others. Ankita helped her grandmother with all the little things she could do for her and in reward would get a lot of blessings from her. She took the responsibility of taking her grandmother to the dispensary for her monthly checkups. She started teaching the vegetable vendor's children to read and write. Hence, we understand that every individual has some rights and responsibilities as a member of a family as well as a community. Only when the rights and responsibilities are taken together, there will be peace and harmony all around.

**Responsibilities and rights go together and help in creating conducive environment**

## 21.4 CARING AND RESPECTING OTHERS

Answer the six questions given below to test yourself and see if you sometimes show disrespect to others. There is no score or marking system. You are your own best judge.

- Q.1 When you enter a room do you remember to greet every single person in the room?
- Q.2 When you visit a friend's home, do you remember to take leave from the elders of that house?



Notes

- Q.3 When your friends visit you, do you introduce them to your other family members?
- Q.4 Do you raise your voice when you argue with elders?
- Q.5 Do you make a plan to go out without informing your mother or change the channel to your favourite TV programme without caring about the other family members?
- Q.6 Do you always stay away on important days in the family?

**Remember: All these are signs of disrespect.**

Ankita had heard her cousin asking a question, which she too asked, until a couple of years ago – “why should I respect somebody just because he/she is elder to me”? She has the answers now. Simply put, **one needs to be respectful to everybody, both elders and younger.**

**RESPECT: TO GET IT, YOU MUST GIVE IT**

Respect is one way of expressing our love and gratitude towards others. If we want others to give us respect, it is important that we respect them too. It does not mean that one needs to accept everything that others say. Sometimes you might not agree with their beliefs and views. It is important to know that even though it is alright to disagree it needs to be expressed politely. The younger generations often have disagreements with their elders and it is these differences that bring changes in human society. However we should always remember that **expressing your views is your right, but doing it respectfully is your duty.**

**It is important to RESPECT ELDERS. But in case they make you feel uncomfortable, or take undue advantage of your respect, do not hesitate to confide in a trusted adult.**



**INTEXT QUESTIONS 21.1**

- 1. Define the terms Ethics and Values?

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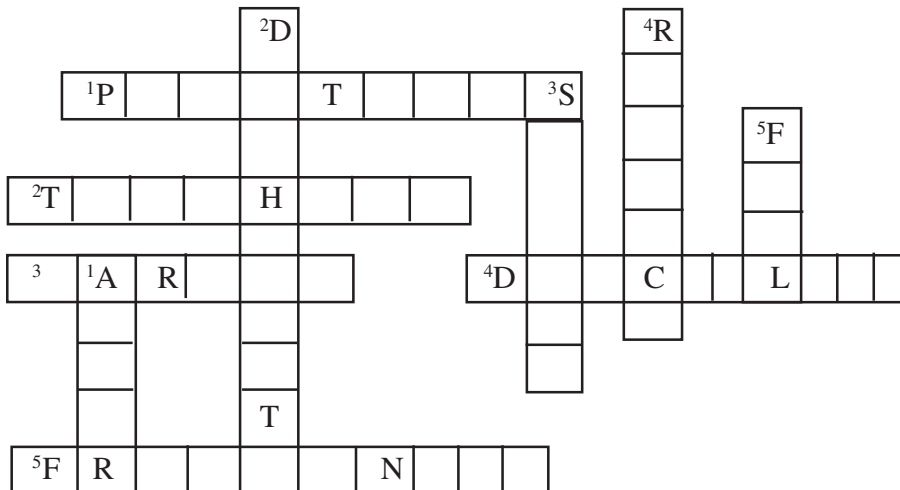


Notes

2. Some good manners are listed below. Match Column A with Column B

1.	Speak to others	a.	when two people are talking
2.	Think before	b.	when talking to your parents
3.	Don't interrupt	c.	which can be understood by all in the group
4.	Never speak	d.	when talking about yourself
5.	Be respectful	e.	while sitting in a group
6.	Converse in the language	f.	ill of others
7.	Behumble	g.	you speak
8.	Do not whisper	h.	cheerfully
		i.	successfully

3. Solve the following cross word puzzle:



**Down**

1. Feeling when you loose your temper \_\_\_\_\_
2. The opposite of honest is \_\_\_\_\_
3. Sheena is \_\_\_\_\_, she does not like to share anything.
4. We should always show this to our elders \_\_\_\_\_
5. We should not use \_\_\_\_\_ language





## Notes

**Across:**

1. \_\_\_\_\_ in a person's speech shows that he has good manners.
2. Mahatma Gandhi was always \_\_\_\_\_
3. A person with \_\_\_\_\_ attitude is liked by all.
4. We learn \_\_\_\_\_ in school.
5. Ask for this if you do something wrong.

### 21.5 DIGNITY OF LABOUR

Rajan was a fruit seller and Krishna, a seventy year old man was a road side cobbler who used to sit beside Rajan's shop. Taking pride in his work, Krishna would challenge Rajan to inspect for any fault in the repair work. In case Rajan found any fault, Krishna would work with renewed vigour and present it again for inspection. Once Rajan asked him as to why he was working when he has three earning members at home. Krishna replied that he wished to earn his meal in a dignified manner.



Fig 21.3

All form of work manual or intellectual is called labour. **Dignity of labour means that all jobs are respected equally and no occupation is considered superior over other.** Unfortunately we start attaching value to intellectual work. We forget that respectability lies not in the kind of work we do but how well it is done. A sweeper who does his work well is more praiseworthy and hence is more honourable than a high placed official who neglects his duties or earns money through unfair means. All the religions of the world have talked about dignity of labour. The story of what Prophet said to a man who came to him expecting some charity clearly illustrates this. The prophet sold the man's only belongings, a blanket and leather bag for two dirham. He gave this money to the man and asked him to buy an axe, cut and sell wood and return to him after fifteen days. When the man showed him the 20 dirhams (currency in several Arab nations) that he had earned for his labour, the Prophet (Pbuh) told him: "This is good for you rather than begging that leaves horrible scars on your face in the hereafter." Similarly Guru Nanak, the first guru of the Sikhs, also spoke of the dignity of labor, and one of the first stories that began to circulate about him concerned his interaction with *Malik*

*Bhago*, the rich *zamindar* of Saidpur village and *Bhai Lalo*, a poor carpenter of the same village. Legend says that Guru Nanak chose dry bread at Bhai Lalo's over the sumptuous meal at Malik Bhago's because dry bread was bought out of the money earned with hard and honest labour.

**Therefore, dignity of labour means that one respects all jobs equally and does not consider one superior to another. Rather than depending upon others it is better to earn one's own living and that too by honest means.**



### ACTIVITY 21.1

Often we take our loved ones for granted. We fail to value all the work that is put in by various members of the family in running a happy and fulfilling household. Have you ever thought about how much your parents and siblings do for you? Do this activity to see what family members do for each other and if we respond in the same way.

What do they do for you?	What do you do for them?
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Can you write down five lines on how you feel when you do something for your family members?

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Notes



## Notes

## 21.6 TOLERANCE, EMPATHY AND POSITIVE ATTITUDE

You must have known some people who may have excellent technical skills but find it difficult to get along with their team mates and the staff. They may face troubles in handling situations and problems of daily life in a positive and constructive way. Apparently they lack important skills like effective communication, problem solving, coping with stress and emotions, maintaining interpersonal relationships or even empathy for team mates and staff. All these and many more such skills are referred to as life skills.

**Life skills are “the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life”** ‘Adaptive’ means that a person is flexible in approach and is able to adjust in different circumstances. ‘Positive behaviour’ implies that a person is forward looking and can find a ray of hope and opportunities to find solutions even in difficult situations.

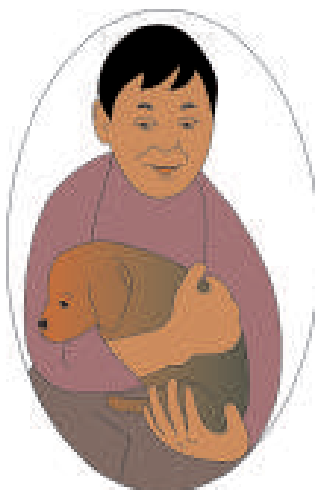


Fig 21.4

A farmer had some puppies which he wanted to sell. So he put up an advertisement. A little boy wanted to buy one of the puppies. The puppies were very expensive and the boy did not have enough money. Searching his pocket, he pulled out Rs. 10 and asked the farmer if it was enough to take a look at the puppies. The farmer agreed. The boy was delighted to see them. Suddenly, he noticed that one of the puppies was walking in an awkward manner. “I want that one,” the little boy said. The farmer informed that the puppy will never be able to run and play with him, since it had a limp. The boy paused for a while and insisted on buying that particular pup only. It was because those who are not able to run and play have less friends and he did not want that the pup to be lonely. The farmer was so

moved by the **empathetic gesture** of the little boy that he handed over that puppy to him.

The world is full of people who need someone to understand them. How good it would be if we start empathizing with people around us. **Empathy is the capacity to recognize and share the feelings that are being experienced by others.** **Tolerance** is another skill which helps us live peacefully in the society. **Tolerance is the ability to accept opinions and practices different from your own.** We can easily think of people who are intolerant and cause a lot of pain to others. Living in a society requires us to be tolerant towards the differences that exist among us. However, it does not mean that we should become indifferent to injustice and corruption or to accept evil around us. Infact, tolerance of the wrong things is a great evil.



Notes

Another attribute, along with empathy and tolerance necessary for living is positive attitude. **A positive attitude leads to positive events in your life.** Once Mrs. Gill an old and frail lady entered a restaurant and was greeted with lot of love and affection by the owner. Another customer looking at this could not resist himself asking the owner about her. The owner explained that during school years, his class was the naughtiest one the school had ever witnessed. Mrs. Gill, the science teacher, was their new class teacher. The class did everything they could to give her a hard time. But she never lost her temper, no matter what they did. At the end of the first month she brought a bunch of papers in her hand to the class. Everybody feared for the worst – a test. But no, it was something that surprised everyone. She called them one by one and gave them a paper each. Each paper had at least one good characteristic of the student in question. No teacher had ever done such a thing for them before. From then on Mrs. Gill did this every month emphasizing on their strengths and good work. The restaurant owner said that he was a class bully and could not think of anyone who would ever see something good in him. But by commenting on his courage and strength in settling arguments she gave him an opportunity to use his strengths positively. This is how Mrs. Gill moulded a bunch of misfits into great achievers – because now they believed in themselves. These students went on to fulfill their dreams. Instead of ruining their life with fights, alcohol and drugs they developed a positive attitude towards life.

**Positive attitude helps to cope up with the day to day life. It brings optimism and makes it easier to avoid negative thinking and worries. It also helps to develop and maintain healthy interpersonal relationships**

Empathy, tolerance and a positive attitude are also essential in understanding the requirements of people with special needs around us. These could be people with physical or mental disabilities, hearing or visual impairment. Even senior citizens deserve our love and care. Think of how you can help and/or work with them.



### INTEXT QUESTIONS 21.2

1. Give short answers

1. Do you think it was right for the farmer to take Rupees 10 from the little boy for just looking at the puppies?

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Notes

2. What according to you must the little boy had felt when he came to know that the pup was suffering from a physical defect in his limbs?

---

---

3. Do you think that it was brave of the little boy to accept the pup with such a defect?

---

---

2. State if you agree or disagree with the following statements. Give reasons for your answer.

1. We can care for others as long as we are happy and contented. **Agree/ disagree**

---

2. Only intolerance and aggression can give us what we want. **Agree/disagree**

---

3. Education and good upbringing promotes values. **Agree/disagree**

---

4. Children from poor families cannot have values. **Agree/disagree**

---

5. Showing tolerance and empathy are the keys for leading a peaceful life. **Agree/disagree**

---



**ACTIVITY 21.2**

Identify people with special needs in your environment. Observe their constraints and challenges. Ask any one of them how you could facilitate their day-to-day activities. Prepare a role play based on your understanding of people with special needs. Perform that role play in your neighbourhood and conduct a discussion to create awareness about the issue.



### INTEXT QUESTION 21.3

1. From the grid given below find one word for the following sentences, which you have already read in this chapter. The words may be found diagonally, horizontally, vertically or reversed.
  - a. The ideas and beliefs which we hold.
  - b. We should show this not only to our elders but to our youngsters too.
  - c. The ability to accept opinion and practices different from your own.
  - d. Being sensitive to others needs.
  - e. The ability to understand, recognize and share feeling that is being experienced by someone else.

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

### 21.7 YOUR PERSONAL CODE OF CONDUCT

After reading this chapter, let us see if there has been a change in the way you think. Answer the same set of questions which you have already done in this chapter, Compare it with the previous one and note down the change. Answer truthfully about how you feel in the following situations

1. Returning what belongs to others upsets me. Yes / No
2. Picking money from my friend's bag adds to my pocket money Yes / No



Notes



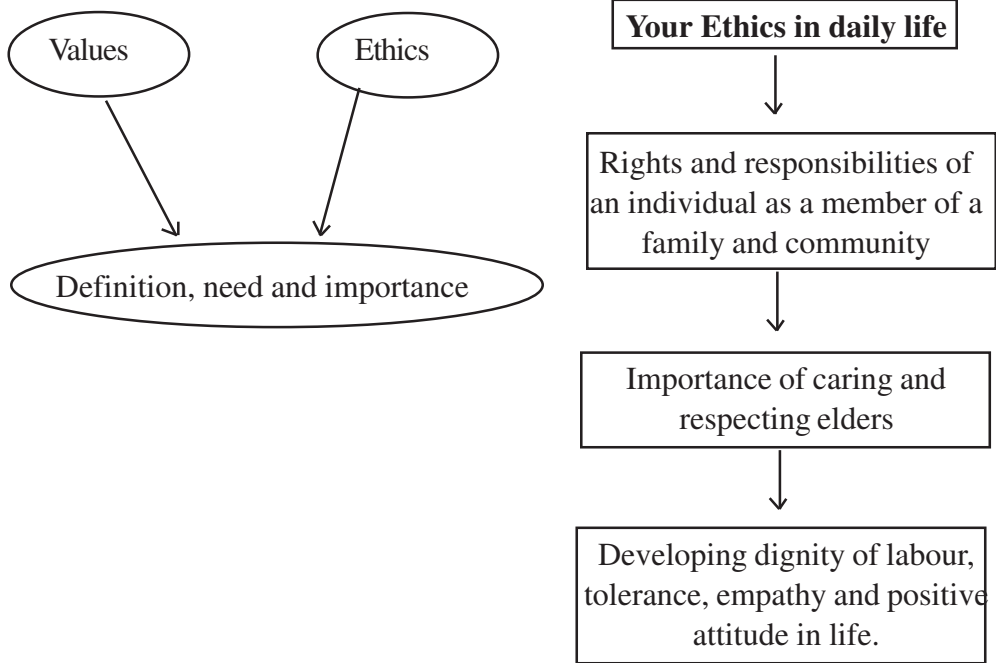
Notes

- |                                                          |                 |
|----------------------------------------------------------|-----------------|
| 3. Honesty is rewarded in the long run.                  | <b>Yes / No</b> |
| 4. If I have some rights, I have responsibilities too.   | <b>Yes / No</b> |
| 5. My values help me to make correct decisions.          | <b>Yes / No</b> |
| 6. Doing my chores myself gives me satisfaction.         | <b>Yes / No</b> |
| 7. I do not like my elders to advice me on every issue.  | <b>Yes / No</b> |
| 8. It does not bother me to see other people in trouble. | <b>Yes / No</b> |

Based on what you have learnt make a personal code of conduct for yourself. Check periodically if you are following the plan. After practicing it for three months assess if your outlook towards life has more positive.



**WHAT YOU HAVE LEARNT**



**THIS CAN HELP YOU TO DEVELOP**





## TERMINAL EXERCISES

1. Define the terms Values and Ethics with the help of examples from your daily life?
2. Where there are rights there are responsibilities too. Comment.
3. Why do you think there is a need for ethics in our daily life?
4. List down all the values you have learnt in this chapter.
5. How can the ethics of work-place benefit the employee?
6. How can we show respect to our elders?
7. Why is it important to appreciate/respect all jobs equally?
8. We should not be tolerant of everything that happens around us. Discuss.
9. How can our positive attitude help us in our daily life?
10. How has this chapter helped you to develop your personal code of conduct?



## ANSWERS TO INTEXT QUESTIONS

### 21.1

1. Values are the ideas and beliefs we hold as special and those that we imbibe from our parents and immediate surroundings. Ethics are how we actually behave in a difficult situation that tests our values.
- 2.

1	h
2	g
3	a
4	f
5	b
6	c
7	d
8	e



Notes





Notes

3.

										<sup>2</sup> D												<sup>4</sup> R						
<sup>1</sup> P		O	L	I	T	E	N	E	S	<sup>3</sup> S		E																
										S	E	S	<sup>5</sup> F															
<sup>2</sup> T		R	U	T	H	F	U	L											L	P	O							
										O	F	E	U															
<sup>3</sup> C		<sup>1</sup> A		R	I	N	G											<sup>4</sup> D		I	S	C	I	P	L	I	N	E
		N			E											S	T											
		G			S											H												
		E			T																							
<sup>5</sup> F		O	R	G	I	V	E	N	E	S	S																	

4. The students can write their own experiences

**21.2**

1. The students have to write from their own answers
2.
  1. Disagree. Caring for others is a value that does not depend upon mood or situations.
  2. Disagree. Aggression may result in negative consequences.
  3. Agree. Both education and good upbringing have a big role in developing values.
  4. Disagree. Values are based on what we think is right or wrong, it has nothing to do with the amount of money we may have.
  5. Agree. Tolerant rarely fight with others, which helps in building peaceful environment.

**21.3 1**

<sup>a</sup> V	<sup>b</sup> R	E	S	P	E	C	<sup>c</sup> T	U
A	R	D	E	E	G	H	O	I
L	F	V	F	E	Z	X	L	<sup>d</sup> C
U	H	S	C	I	H	T	E	A
<sup>e</sup> E	M	P	A	T	H	Y	R	R
S	A	M	L	A	I	D	A	E
W	Y	K	E	V	L	B	N	J
D	I	R	N	P	T	Y	C	B
T	P	O	V	U	L	D	E	S



22

## CONSUMER BEWARE! BE AWARE!

SALE UPTO 80% ! Buy ONE get ONE FREE! HURRY! Limited period OFFER! SPECIAL DISCOUNT for first 100 customers! FREE television with a refrigerator! How often have you been lured by such clever sale tactics? Or often felt disappointed to find that there is some catch in such sales gimmicks? Some of you may have been cheated by both shopkeepers and manufacturers, who try to blame each other by saying that “you may not have read or followed the instructions!”

In such a case, what do you do? Is there anyone to help you? Yes! There is an agency which not only listens to your grievances patiently but also helps you in getting a compensation for deficiency in performance. This agency may also impose punishment on the offenders. But, for that, you need to become a responsible consumer, shed the indifferent attitude, and exercise your rights. In this lesson, you will learn how to be aware of market malpractices and become an aware consumer.



### OBJECTIVES

After completing this lesson, you will be able to:

- describe yourself as a consumer under the Consumer Protection Act 1986;
- critically analyse problems you face as a consumer and find appropriate solutions;
- appreciate the role of consumer education, and effectively use consumer aids to your advantage;
- identify and exercise your rights and responsibilities as a consumer and;
- file a complaint in the appropriate forum when the need arises.



Notes

**22.1 WHO IS A CONSUMER?**

Each one of us is a consumer. To take an example: Guddi buys vegetables for her family. She also pays a maid for her services like cleaning the house and washing clothes. She pays her electricity bill and water charges as well. Each time she makes a payment for some thing that she buys (product) or in lieu of a service rendered, she becomes a consumer. As we have said earlier, all of us are consumers, because we all buy goods from the market and pay for the services rendered by others.



Fig 22.1

A consumer is a person who buys or uses either goods or services, to satisfy his needs.

The CPA (Consumer Protection Act 1986) clearly identifies two categories of consumers:

- (i) “One who buys and uses any goods.”
- (ii) “One who hires or avails of any service for personal use.”



**ACTIVITY 22.1**

Can you now list any four products and services for which you have paid for or used as a consumer? A few examples are given below to help you.

S.No.	Products	Service
1.	Shirt	Tailor
2.	Umbrella	Electricity
3.		
4.		
5.		
6.		

As a consumer, you may have often encountered many problems. Let us reflect on some of these problems. Based on your own experiences, see if you can add some more.

## 22.2 PROBLEMS FACED BY YOU AS A CONSUMER

### 1. Price Variation

Sometimes you may find shopkeepers or vendors charging you more than the price printed on the product. This printed price is the Maximum Retail Price (MRP), which means a shopkeeper cannot charge you more than this amount or MRP.

On being questioned about charging more than the MRP, shopkeepers often make excuses like- paying a hefty amount as rent inside the cinema hall or exhibition, or of being charged extra local taxes. **You should be aware that the MRP or the printed prices are also inclusive of all taxes!**

Similarly in the case of a service, one electrician may charge more than the other for the same kind of work by saying that he provides guarantee for his work.

How can you ensure that you are paying for good quality services? You may:

- get references of people providing good quality services;
- ensure that good quality parts are used;
- supervise personally.

Think of other ways by which you can ensure good services.

Do you know you can actually file a case against such people and they can be fined a hefty sum?

### What can you do as a consumer?

You need to find out prices of different brands of products, the two products (i.e. wheat flour and turmeric powder) that your family purchases from different shops. You can compile your data in the following table and then compare the prices, the quantity and the standard marks, like FPO, ISI, Agmark, etc.

For clarification, it may be noted that Standard marks are marks of quality given to products which meet certain standards in terms of material used, method of manufacturing, labelling, packing, sale and performance.

Product	Brand name/ Company Price	Quantity	Standard	Shop Mark
Wheat flour	1.			
	2.			
	3.			
	4.			
Turmeric powder	1.			
	2.			
	3.			
	4.			



Notes



**Notes**

Similarly, you can also find the prices of other commodities and make an informed choice. After the survey, you can conclude and identify the shopkeepers who can give you good quality products at a better price. Now you are in a position to decide from where you should buy your groceries.

But do remember to update yourself periodically, using the same method after determining your needs. You can also negotiate the prices by buying in bulk. Shopkeepers often lower their prices for regular customers. Remember, **DO NOT** pay more than the MRP (printed on cover of the product). If the shopkeeper still charges you above the MRP, take a receipt as it will help you file a complaint.

**2. Lack of Standardized Products**

The market is flooded with substandard products. Have you ever wondered why shopkeepers claim that these substandard products are better and are ready to give you a guarantee for them? This is because they get a much higher commission from the manufacturer on substandard products as compared to the standard ones.

**What can you do as a consumer?**

Visit a shop near your home and request the owner to allow you to survey at least six brands of one product, three of which bear a standard mark and three that do not have the standard mark.

Compare and tabulate them in the following table on the basis of their price, capacity, standard marks, ease of use, after sales service, electricity consumption, warranty/ guarantee. After this, select the brand that offers the maximum advantages.

<i>Product</i>	<i>Price</i>	<i>Ease of use</i>	<i>Standard mark</i>	<i>After sales service</i>	<i>Electricity used</i>	<i>Warranty/ Guarantee</i>

Check out the difference in the quality of the standard and the substandard products that you have compared. For example, ask yourself whether it is worth buying an electronic appliance that might cost less at the time of purchase but.

- uses more electricity
- has no after-sales service
- is difficult to clean and use
- gives electric shocks

And make a wise choice!

### 3. Imitation

You may have come across products that imitate the packaging of popular brands. Often the brand names are made to rhyme intentionally to fool the customers. For example, the popular brand of 'Colgate' toothpaste is imitated as 'college' toothpaste, though the colour combination and design of the cover is exactly the same. Similarly, the famous Lal-imli brand of wool is imitated by just a difference in placement of hyphen 'lali-mali', you may think this is a misprint on the packaging, which is not so.

Why do you think the manufacturers resort to such practices? Yes, you are absolutely right, they do not have to spend on advertisements. They often imitate popular brands to gain popularity, knowing fully well that most consumers recognize the products by their packaging and do not bother to read the fine print.

Some manufacturers even imitate the standardized marks. Samples of genuine and copied standard marks have been provided below. Can you differentiate the genuine from the fake ones? Yes figure 22.2 (e) is genuine (however IS: and CM/L number can vary) while others are all fake. Do you know that imitating logos and packaging is a serious criminal offence and is punishable under law?



Fig 22.2: Fake and genuine ISI marks

### What can you do as a consumer?

You may try to collect packaged products that have their packing symbols identical to popular brands and products bearing standardised marks or duplicate standard marks. Use both the products, duplicate as well as the original and check the difference in quality. Rate them for the following features and then make an informed decision.





Notes

Product	Taste	Colour /Appearance	Quality	Cost

#### 4. Adulteration

In order to earn more profit, manufacturers or shopkeepers intentionally either add inferior substances from a product or subtract a vital element from a product. The element that is added to the main product i.e. food stuff is called **adulterant**. You may have observed that the milk supplied by your milk vendor does not yield much cream. Even rice and pulses contain stones. Stale or padded pulses may even be polished with artificial colour to make them appear fresh. Recently new adulterants such as Iridium and Ruthenium have been found to be mixed in gold articles. Have you also observed adulterants in your food? List them below.

- 1)
- 2)
- 3)



#### ACTIVITY 22.2

You can also conduct these simple tests (refer table 22.1) at home to check the purity of your own food samples. Tally your observations with the results given at the end of the lesson.

**Table 22.1: Adulteration Tests**

Food stuff	Adulterant	Test	What did you observe?
Milk	Water	(i) Keep milk in a tumbler for 10 minutes and pour it into another tumbler  (ii) Put a drop of milk on a plate and tilt it	(i) Does it form a ring on the top?  (ii) Does it leave a track?
Black pepper	Papaya seeds	Put a small amount of black pepper in half a glass of water.	How many rise up and how many settle down?
Asofetida	Resin, gum	Add water in a sample and shake well.	Does it turn milky?



Notes

Tea leaves	Coloured exhausted tea leaves	Put a sample of tea on a blotting paper. Sprinkle it with water.	Does it leave colour?
Coriander powder	Dung powder	Soak in water.	Does it smell of cow dung?
Spices	Extraneous colour	Take a tumbler of water. Sprinkle small quantity of spice on the surface of water.	Does the water become coloured?
Tea, semolina	Iron fillings	Pass a magnet over the sample.	Do iron fillings cling to magnet?

For more tests refer to this website if you have access to it:  
<http://pfa.delhigovt.nic.in>

**What can you do as a consumer? Consider the following:**

- be alert to any change in colour, taste, appearance or smell;
- read labels carefully;
- check for genuine standard marks;
- buy from reputed shops and refuse to buy from unscrupulous shop keepers;
- buy reputed brands;
- buy only packed and sealed foods;
- buy whole grains and spices, and grind them at home;
- do not compromise on quality and price;
- from time to time test food items like milk, spices, sugar and oil at home;
- get doubtful samples of food tested at PFA (Prevention of Food Adulteration) laboratories;
- change the brand/ shop, if samples are impure and;
- report to the concerned authorities.

### 5. Non-Availability, Black-marketing and Hoarding

Before the annual budget, each year the shopkeepers speculate and increase the prices of certain commodities and hoard stocks to earn higher profits.

This is especially true in the case of gas agencies. When the domestic gas price is about to increase, they stop supplying gas to the consumers. But when they know



Figure 22.3





**Notes**

that prices of gas cylinders are going to decrease, their rule of delivering the next cylinder only after fifteen days is no more applicable and they immediately supply the gas cylinder.

Many people collect their monthly rations at subsidized rates from government operated ration shops. During the festive season, many groceries go out of stock especially sugar and kerosene. Do you know why? Often greedy shopkeepers of ration shops sell these items in the open market to sweetmeat shopkeepers and make high profits.

In such cases, the consumer faces a lot of difficulty and inconvenience.

**What can you do as a consumer?**

If possible, in such cases, you can:

- shift to a different brand of the same product;
- use an alternative to the product, for example, use jaggery instead of sugar; and
- report to concerned authorities.

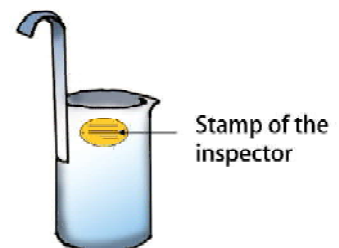
**6. Defective weights and measures**

Do you check the weights and the scales that are used to weigh the products you buy? Have you ever checked the measures used for milk or kerosene? These weights have a hollow or a false bottom or may be dented. They measure less than what you have paid for. You may have noticed shopkeepers using stones instead of proper weights. Often magnets are stuck under the balance pans to cheat the consumers.

**What can you do as a consumer?**

While buying unpackaged milk from a milk vendor, be alert on all the ways he may adopt to cheat you. Check-

- Is the milk being measured till the brim?
- Is he emptying the measure completely, before he starts filling it again?
- Does the measure have a false bottom?
- Does the measure have a stamp of the inspector along with the date?



**Figure 22.3 a**

While buying vegetables, refuse to buy if:

- the shopkeeper uses stones instead of weights;
- the balance has iron rings on one side;



Notes

- any magnets are stuck under the pan;
- he is putting any rotten or stale vegetables;
- the pointer is missing in the middle of the balance;
- the balance is kept on a tilted surface.

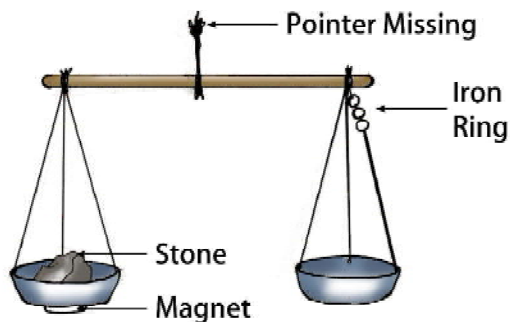


Figure 22.3b

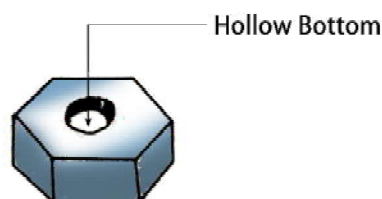


Figure 22.3 c

When you are buying fabric, refuse to buy if:

- the cloth merchant is using a table to measure the cloth.
- the measuring rod is bent.
- the shopkeeper is stretching the fabric while measuring.

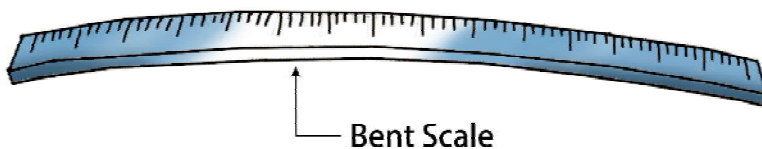


Figure 22.3d



### ACTIVITY 22.3

Visit a vegetable vendor. Tactfully request him to show you where the weights are stamped. (You may tell him that it is part of your project.)

Politely ask the vendor if he could keep the vegetables where he normally keeps the weights and keep the weights in the pan where he normally keeps the vegetables.

What was the reaction of the vendor?

- Did he happily agree?
- Did he refuse?

If he refused, do you think he is trustworthy? Would you like to buy things from such vendors?



## Notes

### 7. Misleading information or lack of information

You may have noticed that most of the products advertised are misleading and exaggerated. The products are not as effective as they are claimed to be.

You may have also faced problems in getting detailed information on the products that you want to buy. Shopkeepers often refuse to give pamphlets of the product on the pretext that they are sealed inside the box of the product. Often, the print on the label is too small or blurred or the matter is written in local language, which is not understood by most of us.

You might have also seen 'free' gifts being offered along with the product; for example, a free plastic jar with a particular brand of tea or a free bowl with cooking oil. But these 'gifts' are actually 'free'? Is their price included in the price of the product or is the original price raised to cover the cost of the gift? Quite often, the latter is the case, because the salesman's motive is only 'profit' and not a 'free gift' to a consumer.

Similarly, heavy discounts are offered during festivals or at the end of a season. Everywhere you can see banners of 'sale'. These 'sales' often offer poor quality/defective articles and thus mislead the consumers. In most of the cases, the actual price is written as discounted price after putting an exorbitant price on the label. As a consumer you can make smarter choices to tackle this issue.



### ACTIVITY 22.4

#### For exaggerated advertisements

Test two or more samples of different detergents. It could be a new one shown on television and the one that you normally use. Conclude whether the new product is as effective as it claims to be. Which one would you like to use and why?

#### During sale

To decrease the chances of being cheated during sales, find out the quality, prices and weights of products before and after the sales. Try not to get swayed by these sales.

### 8. Problems related to services

As discussed earlier, most of us are aware about the problems related to products. However, the problems related to services are not given much importance by the consumers, though they get cheated by the service providers also.

Did you know that sometimes gas agencies fill up the commercial gas cylinders from the quota of subsidised domestic gas cylinders, thereby creating a shortage in the domestic supply of gas?

Service providers/ financial institutions like banks are at times, rude and refuse to cooperate, or answer the queries of the customers. Often they charge service taxes on facilities that are provided without the consent of the customers. You may have heard of customers complaining about money being pilfered or transferred from their accounts.

Similarly, house builders and school authorities charge large sums as security deposits, for which no interest is paid. You may have observed that often there is no staff present at the railway ticket counters during working hours. Similarly, services such as post, electricity, telephone, water supply, health etc. leave a lot to be desired. Complaints are often ignored or work is not done until you pay tips to the workers.

### What can you do as a consumer?

- i. Try and recollect the problems you have faced in the market, while purchasing goods. List and compare them with the ones mentioned in the lesson. Note the action you have taken to solve them.
- ii. Find out from five of your friends and neighbours whether they have ever faced similar problems with the same shopkeepers and the same service providers. Check the ways they have used to tackle these problems.
- iii. If you and your neighbour have faced the same problem with the same shopkeeper see how both of you can unite and tackle him.



### INTEXT QUESTIONS 22.1

1. Read the lesson carefully. Find out 'one word' used in the lesson to indicate the following:
  - a. The person who buys goods and pays for services \_\_\_\_\_.
  - b. The items that we buy from the market \_\_\_\_\_.
  - c. Repair of an electric switch for which the consumer pays money \_\_\_\_\_.
  - d. The term used to indicate duplicate products \_\_\_\_\_.
  - e. The process of addition or removal of some thing to lower the quantity or quality of food stuffs \_\_\_\_\_.



Notes



**Notes**

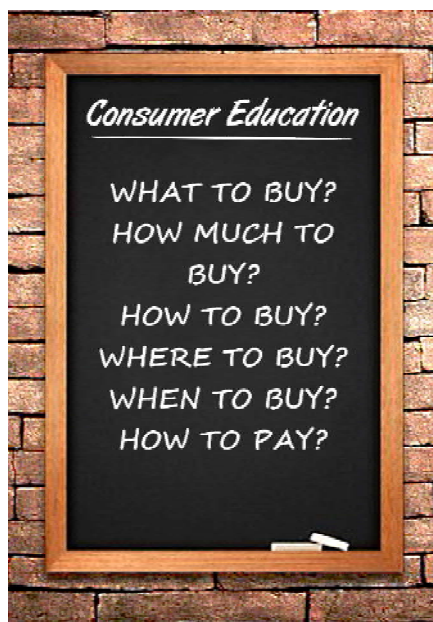
- f. Selling goods at prices more than the actual cost at the time of shortage\_\_\_\_\_.
  - g. Manufacturers informing the consumers about their products \_\_\_\_\_.
  - h. Absence of this creates a problem to the consumers while selecting quality goods\_\_\_\_\_.
  - i. A shopkeeper cannot charge you more than this amount \_\_\_\_\_.
2. You encounter the following problems in services. Suggest ways to deal with these problems.
- a) Your iron stops working within a week after repairs.
  - b) The gas cylinder you have received weighs less than the weight specified.

**22.3 ROLE OF CONSUMER EDUCATION**

Can you think of ways to equip yourself to tackle these problems? How can you make yourself a wise consumer? Consumer awareness can be brought about by proper education.



**Fig 22.4**



**Fig 22.5**

Consumer education involves educating the consumer as to what, when, how, from where to buy and how to pay? These have been discussed in table 22.2 as wise buying tips.

Table 22.2: Wise Buying Tips

	Ask yourself?	Suggestions
<b>What to buy?</b>	Do I need it? If your answer is no - Am I buying it because my friend has it? Or Am I buying it because they showed it on television? If your answer is yes-	Don't buy it !
<b>How much to buy?</b>	How much do I buy ?  Do I need to purchase in bulk?	Buy- - according to your needs. - Non-perishables (in bulk) - Semi-perishables (quantity enough for a week) - Perishables (in small quantities) - Buy from a wholesale market.
<b>How to buy?</b>	What do I check	- Survey the market. while buying - Read the labels for : • date of manufacture • date of expiry • ingredients • instructions regarding use • standardized marks - Buy goods in sealed containers, packets and bags.
<b>Where to buy?</b>	Which shop to buy from?  What if there is a defect in the product?	Buy from a licensed or co-operative shop only.  Buy from a shop keeper who replaces faulty goods.
<b>When to buy?</b>	Is this the right time to buy?	Buy when shops are less crowded.



Notes



Notes

	I need fruits and vegetables	Buy, seasonal fruits and vegetables
	I need to buy cheaper electronics or woollens.	Buy electronics/ woollens during off season.
<b>How to pay?</b>	Cash or credit?	Can pay by cash, cheques or credit cards.  Check interest charged on credit payments beforehand to avoid paying more.



**INTEXT QUESTIONS 22.2**

1. Match Column A with Column B:

**Column A**

**Column B**

- |                                          |                                                       |
|------------------------------------------|-------------------------------------------------------|
| (i) A consumer should buy from           | (a) when the shops are less crowded.                  |
| (ii) The quantity to be bought           | (b) Consumer Protection laws.                         |
| (iii) The best time to buy is            | (c) Licensed shops/cooperative Stores only            |
| (iv) A consumer should know              | (d) Depends upon the requirement of the family        |
| (v) Payment of goods can also be made by | (e) When genuine discounts are offered by shopkeepers |
|                                          | (f) Cheques                                           |

**22.4 CONSUMER AIDS TO HELP YOU**

From where can you get the information about the products? Many of you may seek help from your friends, family or shopkeepers. To know more about a product before purchasing it, whom do you ask?

Yes, advertisements in magazines or on the television, leaflets, labels of products, packages also provide you with necessary information. All such items that provide you with information on products are called consumer aids.

**A Consumer aid is anything written or illustrated that helps and guides a consumer in selecting a product he/she wants to buy.**

Common aids available to a consumer are labels, leaflets, packages, advertisements, standardisation marks, Legislation and Consumer Associations and Cooperatives.

**(i) Labels**

They are engraved or printed on or attached to the product. Labels are required to give the following information:

- (a) Name of the product
- (b) Trade and brand name
- (c) Manufacturer's name and address
- (d) Contents/ingredients
- (e) Purpose/use of the product
- (f) Directions to use the product
- (g) Warnings and precautions to be kept in mind while using the product
- (h) Date of manufacture and date of expiry in the case of medicines/tonics
- (i) Dosage (in the case of medicines and tonics)
- (j) Guarantee period
- (k) Standardisation mark
- (l) Product price (MRP)
- (m) Net weight
- (n) Lot / batch number
- (o) Date of manufacture
- (p) Date of expiry

**What is the relevance of this information given on the labels to you as a consumer?**

Let's learn more on it:

- List of ingredients- you may be allergic to some thing or the ingredients may be from animal source;
- check for standard mark (is it genuine?);
- tally rates and net amount and then decide whether the pack is cheaper or more expensive;
- to complain, contact manufacturers with reference to lot number;
- avoid purchasing if it is near the expiry date;
- store and use the products as instructed.



Notes





Notes

**ACTIVITY 22.5**

- i. Examine any label and evaluate whether it is complete. Choose the product accordingly; good companies usually give complete information on their labels.
- ii. Prepare a label for a biscuit, oil and pickle.

**(ii) Leaflets**

Leaflets inform about the existence of a product. They also provide details of cost of equipment, instructions for installation and maintenance.

**(iii) Packages**

Most of the products you buy are packed in an attractive package. The package helps you by protecting the product in a number of ways as mentioned below:

- (a) It protects the product from damage (e.g., potato) and spoilage (e.g., milk).
- (b) It protects the product from breakage (e.g., glasses).
- (c) It prevents adulteration (e.g., ghee)
- (d) It prevents pilferage (e.g., oil in sealed tins)
- (e) It helps in transportation and storage (e.g., wheat flour).

You should check whether materials used in packing are safe and do not affect your health.







**(iv) Advertisements**

These are used by manufacturers to promote their product. Besides helping you to know what is available in the market, they also provide information about their use and special features of the product. You should not blindly believe in these advertisements.

**(v) Standardized marks**

These marks ensure the quality of products and indicate whether a product has been produced in accordance with the norms laid down by the standardizing agency. These encourage manufacturers to provide better competition in the market and also upgrade the quality of their products. Specific marks are given to the following products (Table 22.3)

Table 22.3

Standardization mark	Quality assurance of products
<p>ISI</p> 	<p>electrical goods, chemicals, toys, pressure cookers, biscuits, coffee, etc.</p>
<p>FPO</p> 	<p>preserved foods such as tinned fruits and vegetables, juices, jams, sauces, pickles, etc.</p>
<p>Agmark</p> 	<p>Agricultural and livestock products like spices, cereals, flour, pulses, egg, oil, butter, etc.</p>
<p>Woolmark</p> 	<p>Wool and woolen garments</p>
<p>Hall mark</p> 	<p>Gold ornaments</p>
<p>Eco mark</p> 	<p>Recyclable, biodegradable and environment friendly products like preservatives, detergents, plastics, paints, etc.</p>



Notes



**ACTIVITY 22.6**

- i. Survey the market for products bearing genuine standardized marks and add to the above list.
- ii. Look for advertisements of an ISO 9000 certified company in the categories of products and services.

**Notes**

ISO 9000 is a globally implemented standard given to products which provides assurance about the ability to satisfy quality requirements and to enhance customer satisfaction.

**(vi) Legislation**

Certain laws have been passed by the government to protect your interests. For example:

**Consumer Protection Act, 1986 (CPA) now called Consumer Protection Amendment Act, 2002**

The Consumer Protection Act covers all goods and services. Consumer courts are set up at district, state and national levels. You can make your complaint in these courts, according to the price of the product, at a nominal fee. The details of this Act have been given in table 22.4.

**(vii) Consumer Organisations**

The consumer organizations help you in various ways. They :

- Provide information;
- work for the welfare of the consumers;
- guide the government to formulate consumer related policies;
- educate the consumers on various issues;
- arrange and conduct protests against anti –consumer activities;
- test products for their quality and defects and;
- accept complaints from consumers to represent them in consumer courts.

**International Consumer Rights Protection Council (ICRPC)** is a registered NGO that helps and guides aggrieved consumers to file their consumer complaints with the consumer court in India.

**ACTIVITY 22.7**

In your area, there may be a consumer organisation. Go and visit them to find out their activities? How do they work? How can they help you?

## 22.5 YOUR RIGHTS AS A CONSUMER

Do you know consumers have certain rights?

Knowledge of consumer rights will help you to fight against the various malpractices adopted by salesmen and manufacturers.

What are these rights? Let us find out.

- 1) **Right to safety:** A consumer has the right to demand safe goods and be protected against all harmful products like adulterated food or unsafe electrical appliances.

For example, if your oven gives an electrical shock, or your cooker bursts, then under the right to safety, you can file a complaint against the manufacturers.

**Government safeguards your right to SAFETY by:**

- ensuring manufacturers and suppliers not to supply goods which are unsafe, unsuitable, defective or of poor quality. Recently milk containing urea was banned.

- 2) **Right to choose:** A consumer has the right to choose a product from a variety of good quality products. For example, a shopkeeper cannot keep just one brand of a tooth paste. You are entitled to demand more choices of a particular product.

**Government safeguards your right to CHOOSE by:**

- establishing procedures for community and consumer education about products.

- 3) **Right to be informed:** A consumer has the right to demand information regarding a product such as its quality, purity, potency, ingredients, prices, etc. Thus, if the shopkeeper refuses to give you the booklet of the product before you buy the product, you can file a case against him.

**Government safeguards your right to be INFORMED by:**

- issuing warnings along with advertisements of toxic products;



Figure 22.6: Cigarette smoking is injurious to health



Notes



Notes

- prohibiting deceptive packaging; and
- making sure packages clearly identify their price and content.

**4) Right to represent**

The right to be heard and to be assured that consumers' interests will receive due consideration at appropriate forums.



Figure 22.7: Consumer Rights

**The government safeguards your right to REPRESENT by:**

- publishing laws and policies concerning consumers so that they can comment on them;
- monitoring the comments or complaints made by consumers and bringing them to the notice of appropriate authorities and;
- enabling consumers to use their rights by providing legal and financial assistance.

**5) Right to be heard:** A consumer has the right to express himself in the court if he has been cheated. This means you have the right to make a representation against any malpractice at an appropriate forum. This is discussed in detail later in the chapter.

**6) Right to seek Redressal:** The right to seek redressal against unfair trade practices, or restrictive trade practices, or unscrupulous exploitation of consumers. For example, if a shop keeper refuses to give you less than one meter of cloth, this is a restricted trade practice and you can file a case against the shop keeper.

**Government safe guards your right to seek REDRESSAL by:**

- ensuring that consumers are allowed to play an equal role in the resolution of their disputes and

- providing consumers with a right to compensation if they are injured as a result of unsafe goods or faulty services.
- 7) **Right to consumer education:** A consumer has the right to make himself aware of consumer 'evils' in the society. This means that you should acquire the knowledge and abilities necessary for making wise and intelligent choices.



Notes

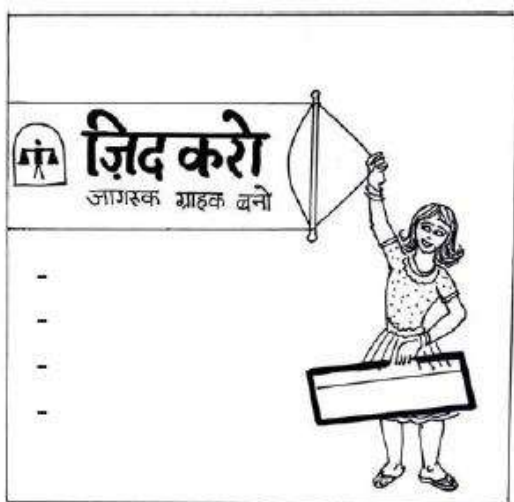


Figure 22.8: Consumer education

**Government safeguards your right to CONSUMER EDUCATION by:**

- ensuring that consumer laws are written in a language which can be easily understood and monitors consumer awareness.
- 8) **Right to basic needs :** Right to basic goods and services guarantees dignified living. It includes adequate food, clothing, health care, drinking water and sanitation, shelter, education, energy and transportation.

**Government safeguards your right to BASIC NEEDS by providing:**

- rations at subsidised rates for low income families
- health care facilities
- safe drinking water
- low cost housing
- free basic and primary education



Notes



Figure 22.9 (a) Ration shop

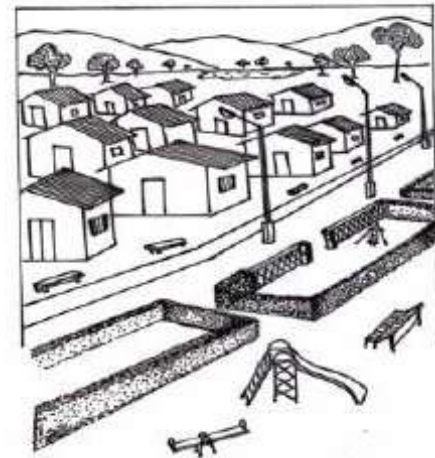


Figure 22.9(b): Low cost housing Scheme



Figure 22.10 (c) Health care facility

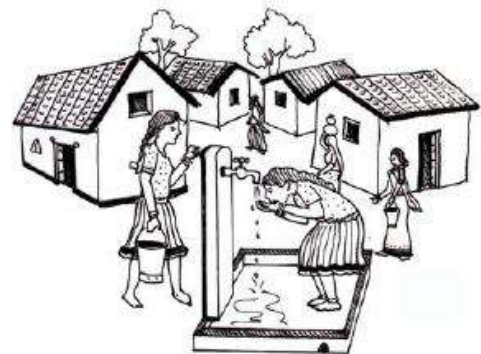


Figure 22.10(d) Safe drinking water

**9) Right to Healthy Environment**

This right ensures a physical environment that will enhance the quality of life. It includes protection against environmental damage. It acknowledges the need to protect and improve the environment for future generations as well. You must be aware that all vehicles have to obtain a pollution free certificate after every three months. Each one of us has a responsibility towards maintaining a healthy environment. Without our active cooperation, government cannot ensure a healthy environment either.

**Government safe guards your right to a HEALTHY ENVIRONMENT by:**

- promoting use of environmental-friendly products
- encouraging recycling of consumer goods
- ensuring pollution is minimised.



Every year, March 15th is observed as World Consumer Rights Day.

It is sad to know that most of us are responsible for the malpractices prevalent in our society. How many of you can proudly call yourselves responsible consumers? Let's find out!

## 22.6 YOUR RESPONSIBILITIES AS A CONSUMER

To know how responsible you are as a consumer, answer 'Yes' or 'No' to the following questions:

1. Do I survey the market before buying anything?
2. Do I insist on taking the bill even if it means paying a bit extra?
3. Do I maintain the bills?
4. Am I ready to buy the groceries at any cost or do I find substitutes?
5. At the time of shortage of any products, do I buy less and share the amount available equally with others and thus do not encourage black-marketing?
6. Do I avoid wastage of anything and discourage excess consumption of those goods which are in short supply?
7. At the time of registering a complaint, do I join hands with 'fellow-consumers' against the sellers and not act in an indifferent manner? Do I realize that it could be my turn next?
8. If I find that I am being cheated, do I file a complaint in the appropriate 'Consumer Forum'?
9. Do I observe any change in colour, texture, taste, label of a product and immediately bring it to the notice of the shopkeeper?
10. Do I buy sealed food products?

### Procedure for filing a complaint:

You purchased a product or service that you weren't happy with? **You must remember, no one will help you if you do not want to help yourself!** Rather than accepting the situation, take action and file a complaint by following these instructions.

**Table 22.4 : Procedure for filing a complaint**

<b>Who can file a complaint ?</b>	Anyone (you) can file the complaint.
<b>When to file?</b>	All complaints to be made within <b>2 years</b> from date of purchase.



## MODULE - 2

### My Family & I

Consumer Beware! Be Aware!



#### Notes

<b>Where to file a complaint?</b>	<p>At District level- complaints can be made for products which cost upto 20 lakh .</p> <p>At State level- complaints can be made for products which cost more than 20 lakh but less than one crore.</p> <p>At National level- complaints can be made for products which cost more than one crore.</p>
<b>What is the fees?</b>	Nominal fees (Rs.100-500 at district) (Rs.200-4000 at state) (Rs.5000 at national)
<b>How to start?</b>	<p>Contact the seller. Keep a record of your conversation (person you spoke to? What date and time? And what action promised.</p> <p>If you cannot resolve the problem, write a letter to the manufacturer by registered mail (format of letter given on page 24)</p> <p>If that does not help, file a complaint in the appropriate forum.</p>
<b>How to file a complaint?</b>	<p>Send notice to opposite party by registered post giving him 15 days to settle your grievance.</p> <p>Fill in prescribed form – stating name, address and description of complainant and of opposite party.</p> <p>State the facts relating to complaint- when and where it arose?</p> <p>Attach bills along with court fee. Specify compensation desired.</p> <p>Submit a notarised affidavit stating facts are true.</p>
<b>Where to submit the complaint?</b>	Submit the complaint and court fee to the receiving clerk in the consumer court who will give you the date for admission hearing and complaint reference number.
<b>What next?</b>	<p>The court will send a notice to the opposite party seeking reply within 30 days, asking him to attend the hearing.</p> <p>The court's final order will be sent to all the parties by registered post.</p> <p><b>Note: it is important for both the parties to attend /send representatives for all hearings.</b></p>
<b>When will the case be settled?</b>	All cases should be settled within 90 days from date of receipt of complaint (5 months, in case the matter is to be tested). For example, in case of seeds, they need to be grown and then tested for germination.
<b>What is the relief available?</b>	Removal of defects from goods, replacement of goods, refund of price paid, compensation for injury/loss suffered, award costs incurred, etc.

You can use the following format of a letter while complaining to the manufacturer.



Notes

*Name and address of opposite party  
(name and address of the company)*

*Date:*

*Dear (Contact Person):*

*On (date), I purchased (or had repaired) a (name of the product with the serial or model number or service performed), I made this purchase at (location, date, and other important details of the transaction).*

*Unfortunately, your product (or service) has not performed well (or the service was inadequate) because (state the problem).*

*Therefore, to resolve the problem, I would appreciate your (state the specific action you want). Enclosed are copies (photocopies of originals) of my records (photocopies of receipts, guarantees/ warranties, cancelled cheques/, contracts, model and serial numbers, and any other documents).*

*I look forward to your reply and a resolution to my problem and will wait (set a time limit) before seeking legal assistance. Please contact me at the address given below or on telephone.*

*Sincerely,*

*Your Name*

*Address*

*Telephone no.*

If nothing works, you can send a short summary of your complaint to: [consumerhelp@mtnl.net.in](mailto:consumerhelp@mtnl.net.in) without any attachments.



### INTEXT QUESTIONS 22.3

1. Answer the following questionnaire to rate your self as an alert consumer.

- (a) If a vendor on a train, charges you Rs. 5/- more than the MRP, you would \_\_\_\_\_.
- give him Rs.5/-
  - refuse to buy
  - complain about him to the concerned authorities
  - bargain with him
- (b) If a shopkeeper refuses to give you pamphlets of the appliances, before you decide to buy it, you may \_\_\_\_\_.
- buy the product and read the pamphlet later
  - buy from another shop where the pamphlet is shown
  - refuse to buy the product.
  - start arguing with the shopkeeper

**Notes**

- (c) When you buy medicines worth Rs.34.50p, do you\_\_\_\_\_.
- insist on taking the bill and keep it safely
  - take the bill and keep it at home.
  - think it is too small an amount to take a bill
  - insist on taking the bill
- (d) When onions are available in the market at Rs 50/- kg., do you\_\_\_\_\_.
- buy them in bulk and hoard them
  - find substitute for onions
  - buy in less quantity and blame the government for rising prices
  - use all your resources to buy onions for personal use
- (e) When filing a complaint for products worth over ten lacs, you would approach the\_\_\_\_\_.
- District Court
  - State Consumer Court
  - National consumer court
  - High Court
- (f) In case there is a variation in price, you would\_\_\_\_\_.
- never know as you do not compare the prices
  - buy it from a shop as the shopkeeper is known to you
  - survey the market and buy at a lower rate even if the shop is very far away
  - weigh the pros and cons for after sales service, quality, guarantee, price and standardised mark before buying
- (g) To avoid buying adulterated turmeric powder\_\_\_\_\_.
- buy the turmeric powder bearing Agmark
  - buy reputed brands
  - buy sealed packets
  - buy whole spices and grind at home



Notes

2. Study the following situation and find a solution to it.

- (a) Rahul is 20 years old. He wants to buy a bicycle. He goes to a nearby shop which has only one brand of bicycle available. He pays the money and does not take a bill as he would have had to pay more money for the taxes. If you were Rahul, what steps would you have taken?
- (b) Sita got hurt when her new pressure cooker burst open. If you were Sita what rights would you have exercised? What would be your responsibilities in this context?

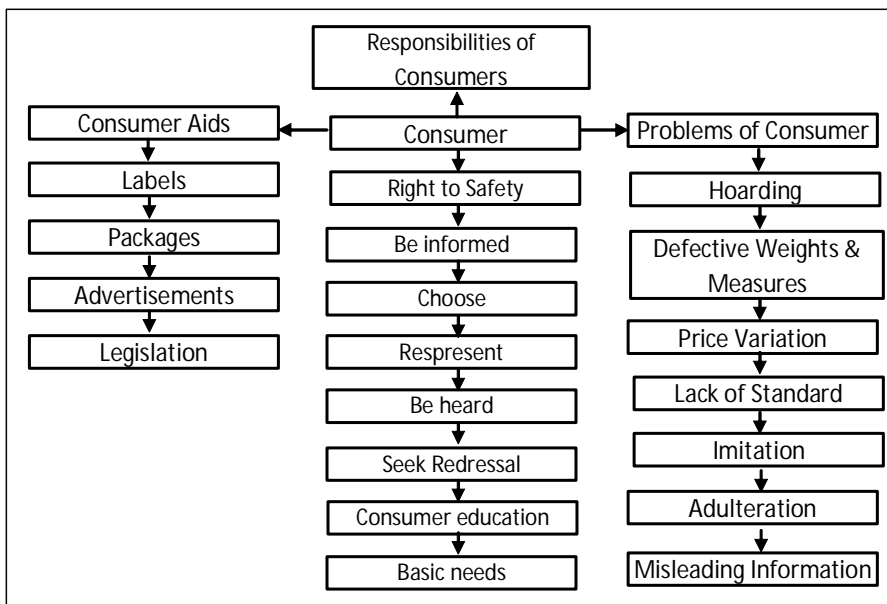


**ACTIVITY 22.8**

1. Rohit bought a refrigerator for 20, 000/- of Cool Company and found it to be defective. The shopkeeper did not listen to his complaints. If you were Rohit, elaborate the steps you would adopt to file a complaint?
2. Using the given format, write a letter to the opposite party and elaborate the steps of filing the complaint:
  - (i) Where will you go?
  - (ii) How much fees will you pay?
  - (iii) How will you file the complaint?
3. Find out the address of District Consumer Forums in your area for help and guidance.



**WHAT YOU HAVE LEARNT**



**Notes****TERMINAL EXERCISE**

1. Define the following in your own words.
  - (a) Consumer
  - (b) Consumer aids
2. (a) Briefly describe any four problems faced by you as a consumer in the following categories :
  - (i) Products
  - (ii) Services(b) Suggest any four ways by which you can overcome these problems.
3. Give four reasons for imparting consumer education to all.
4. You plan to buy a cooler. What are your responsibilities in this context?
5. Why is it important to buy products with standardized marks?
6. List any four ways in which you are likely to get cheated by traders and manufacturers?
7. You have paid for one meter of cloth for your blouse. The tailor tells you it is short by 20 cms. In what ways could the shopkeeper have fooled you?
8. What steps would you adopt to protect yourself from buying adulterated food?

**ANSWERS TO INTEXT QUESTIONS****22.1**

1. (a) Consumer
- (b) products
- (c) service
- (d) duplicate/fake/imitation
- (e) adulteration
- (f) hoarding/black-marketing
- (g) advertisement
- (h) standardized marks
- (i) MRP



Notes

2. (a) (i) tell the shopkeeper  
(ii) write to the manufacturer  
(iii) complain to concerned authorities, if you get no response  
(iv) do not bother/ buy another one  
(i) (ii) (iii) - (Satisfactory), (iv) (unsatisfactory)
- b) (i) make sure you get it weighed  
(ii) phone up the agency and get it exchanged  
(iii) will tell him next time  
(iv) do nothing/not bother  
(i) - (ii) - (Satisfactory), (iii) needs unprovement, (iv) satisfactory)

**22.2**

- i) c ii) d iii) a iv) b v) f

**22.3**

1. (a) (iii)  
(b) (ii)  
(c) (i)  
(d) (ii)  
(e) (i)  
(f) (iv)  
(g) (iv)
2. (a)  
(i) Would have surveyed the market.  
(ii) Compared the prices of atleast 3-4 brands of cycles.  
(iii) Ensured the bicycle was of a standard company  
(iv) Paid taxes and taken a bill as proof of purchase.
- 2 (b)

**Right to-**

- (i) safety,  
(ii) represent,

## MODULE - 2

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Notes

- (iii) consumer education,
- (ii) seek redressal.

### **Responsibilities-** should

- (v) take a bill and kept it safely
- (vi) have read and followed instructions
- (vii) buy standard product
- (viii) complain to authorities
- (ix) Any other (any four)