



# 10<sup>th</sup> Class

## Home Science

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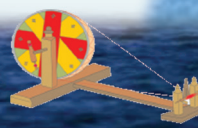
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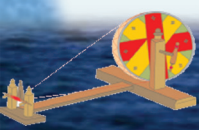
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## Foreword

Education is like a third eye for humans. Education helps to explore himself and understand the society surrounded by him according to situations. Education gives identity and respect to mankind. The society with educationalists develop in all fields and stands in top position. "Education for everyone growth for every one is a universal objective".

The open school society is established to provide education for all those who are not able to educate get only in schools. This society gives an opportunity for those who are away from education with an objective "Education for everyone-education at your doorstep".

Everyone knows about science but home, family, society, surroundings, profession... Home Science is the knowledge of all these aspects. Home Science in particular conveys personal values, career opportunities and contribute to understanding the role of the individual in the family, profession and community. Develops skills required for the profession. Home Science refers to the science and arts of home management. A home isa combination of many elements. Food, resources, clothing, communication, human development are associated with the home. The study of Home Science contributes in laying the foundation for a Quality life in everyday life.

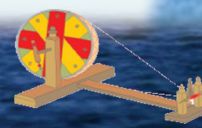
Home Science guides to understand the importance of nutrition, clothing, leading a healthy life, responsible behaviour in society, protecting the environment, human growth and development. To meet the challenges in day to day life, Home Science paves the way to gain satisfaction in personal, professional, family and social life by developing life skills. This science can help us greatly in overcoming the ups and downs of the present life.

There are total 30 chapters in this textbook. The topics discussed were mailny based on themes of food, clothing, home management, health, family, family resources, rights and responsibilities. In relation to all these the current situations, understanding of the actions to be taken and practical priority has been explained. Applying daily life to the curriculum, the textbook is designed to be intresting and self studying using simple language.

We are thankful to teachers, designers, editorial board members, DTP operators for their effort to bring this book in short time. We appreciate **E.D. Madhusudhan Reddy and Sri Suvarna Vinayak**, Co-ordinator SCERT, who played a key role to bring out this book. We are thankful to **Smt. M. Radha Reddy**, Director, SCERT to give permission to utilize the services of subject experts and subject coordinators to bring out this textbook in time. We are thankful to **Sri S. Venkateswara Sharma**, Director, Govt. Textbook Press for his continuous support in initiating the design of textbook. Our special thanks to **Smt. Chitra Ramachandran**, IAS, Principal Secretary for motivating us and identifying the need to change textbook and giving guidance. Our special thanks to **Smt. Sabita Indra Reddy** garu Honourable Minister of Education for her encouragement and guidance. We are also thankful to **Sri Marasani Somireddy**, Joint Director and **Sri Boyinapally Venkateswara Rao**, State Coordinator for coordinating and encouraging authors, editorial board, designers, subject coordinators for successful completion of textbook. I hope this textbook would help the learners to meet their needs and improve their standards in science.

Date : 24-12-2020  
Place : Hyderabad

**A. Krishna Rao**,  
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## వందేమాతరం

- బంకించంద్ర ఛటర్జీ

వందేమాతరం, వందేమాతరం  
 సుజలాం సుఫలాం మలయజ శీతలాం  
 సస్యశ్యామలాం మాతరం; వందేమాతరం  
 శుభ్రజ్యోత్స్నా పులకిత యామినీం  
 పుల్లకుసుమిత ద్రుమదళ శోభినీం  
 సుహాసినీం సుమధుర భాషిణీం  
 సుఖదాం వరదాం మాతరం వందేమాతరం.

## జాతీయ గీతం

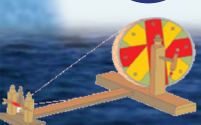
- రవీంద్రనాథ్ ఠాగూర్

జనగణమన అధినాయక జయహే !  
 భారత భాగ్య విధాతా !  
 పంజాబ సింధ్ గుజరాత మరాఠా,  
 ద్రావిడ ఉత్తళ వంగా !  
 వింధ్య హిమాచల యమునా గంగా,  
 ఉచ్చల జలధి తరంగా !  
 తవ శుభనామే జాగే !  
 తవ శుభ ఆశిష మాగే !  
 గాహే తవ జయ గాఢా !  
 జనగణ మంగళదాయక జయహే !  
 భారత భాగ్య విధాతా !  
 జయహే ! జయహే ! జయహే !  
 జయ జయ జయ జయహే !

## ప్రతిజ్ఞ

- పైడిమర్రి వేంకట సుబ్బారావు

భారతదేశం నా మాతృభూమి.  
 భారతీయులందరూ నా సహోదరులు.  
 నేను నా దేశాన్ని ప్రేమిస్తున్నాను.  
 సుసంపన్నమైన, బహువిధమైన నా దేశ వారసత్వ సంపద నాకు గర్వకారణం.  
 దీనికి అర్హత పొందడానికి సర్వదా నేను కృషి చేస్తాను.  
 నా తల్లిదండ్రుల్ని, ఉపాధ్యాయుల్ని, పెద్దలందర్ని గౌరవిస్తాను.  
 ప్రతివారితోను మర్యాదగా నడుచుకొంటాను.  
 జంతువులపట్ల దయతో ఉంటాను.  
 నా దేశంపట్ల, నా ప్రజలపట్ల, సేవానిరతి కలిగి ఉంటానని ప్రతిజ్ఞ చేస్తున్నాను.  
 వారి శ్రేయోభివృద్ధులే నా ఆనందానికి మూలం.







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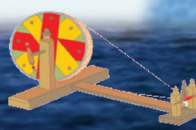
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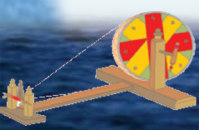
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## Suggestions to learners

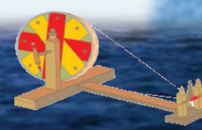
- ◆ A complete awareness of home, family, health, food, clothing, resources, rights - responsibilities should be gained through the Home Science textbook.
- ◆ Every aspect described in the chapters should be applied in daily life.
- ◆ To meet the objectives of teaching Home Science, "**Learning Outcomes**" are given at the beginning of each chapter.
- ◆ Learning should continue in the direction of practising "**Learning Outcomes**".
- ◆ Probing questions are given at the beginning and in the context of each chapter. Based on previous knowledge learning should continue.
- ◆ Many aspects of the curriculum are familiar to you in your daily life, but you need to gain awareness of these through process skills such as examining, analyzing, comparing and conclusion.
- ◆ Each chapter has sections and subsections. Some concepts are explained in each section.
- ◆ In relation to respective topics "**Check your progress**" questions are given at the end of each topic. Through them you can know your level of progress and understanding in that section.
- ◆ The important concepts discussed in the lesson are given in the form of "**Key Points**" at the end of the lesson. Using these you can revise the entire lesson.
- ◆ "**Practice for learning outcomes**" are given to find out how far the prescribed learning outcomes in the lesson have been achieved. Practice them thoroughly.
- ◆ Try to read reference books given at the end along with the textbook.
- ◆ Classes are conducted for direct instruction at the training centre to make you aware of the curriculum. You should attend the classes compulsory. Discuss and clarify your doubts with the trainer at the training centre.
- ◆ A notebook should be kept specially for writing the exercises given in this textbook. You have to write answers on your own in this book. Take the suggestions given by the trainer at the training centre.
- ◆ In your public examination, questions are not directly asked from the textbook. The questions resemble the questions given in the exercises. So, if you prepare answers for exercise questions on your own it can be helpful.
- ◆ You can utilize online facility for better understanding of lessons.
- ◆ Even though you are studying 10<sup>th</sup> class in open school, your textbook is of same level as of regular 10<sup>th</sup> class. So, utilize them in proper way to get good result.





## Suggestions to teachers

- ◆ Gain a deeper understanding of the lessons in all the chapters of Home Science by reading completely.
- ◆ At the beginning of the textbook foreword suggestions to learners, expected learning outcomes are given.
- ◆ By reading "**Fore word**" one can understand the aim and get awareness on the topics of home science textbook.
- ◆ Make the students read "**Suggestions to learners**". You should also read the same to know how to react with students.
- ◆ You can understand the teaching objectives by reading "**Expected Learning Outcomes**". This textbook is not designed for the purpose of completing lessons or passing examination rather it is prepared to meet the expected "**Learning Outcomes**" as main objective.
- ◆ In the introduction of each chapter, based on key concepts of that lesson thought provoking questions, expected learning outcomes, internal questions to test the previous knowledge and illustrations are given.
- ◆ "**Check your progress**" is given to assess the understanding of the concepts in each section and subsection from time to time.
- ◆ Understand the "**Unit structure**" of the lesson in the textbook and make the learner understand the lesson in the same order.
- ◆ Explaining the main concepts of the lesson "**Key points**" are given at the form of sentences.
- ◆ In the "**Practice for Learning Outcomes**", questions are given at the end of the chapter. So, that the students can practice.
- ◆ Keeping in view the days allotted for contact classes at the training centre, divide the number of days per chapter and discuss the lessons with the students.
- ◆ In addition to understanding the concept, students should be encouraged to write the answers on their own.
- ◆ Train the students to write answers on their own for "**Check your progress**" and "**Practice for Learning Outcomes**". Explain them how to write the answers by writing on the black board. Key concepts must be explained clearly.
- ◆ All aspects of the lesson / curriculum must be followed.
- ◆ Keep the referene books at the training centre and make the students utilize them for better understanding.
- ◆ Ask the students to write exercises of the lesson in a separate note book. Observe them and give suggestions.
- ◆ Make sure the students utilize the online learning facilities.
- ◆ In examinations questions are not directly asked from the exercises therefore prepare them to write answers on their own by understanding key concepts.







## Competencies, Learning Outcomes achieved through Home Science

### ◆ **Identifies**

Ex:- Identifies the characteristics of different types of fibres used in the manufacture of natural, synthetic fabrics.

### ◆ **Compares**

Ex:- Compares communicable - Non communicable diseases and rights - responsibilities.

### ◆ **Classifies**

Ex:- Classifies the food items based on the nutrient groups and home appliances based on their functions.

### ◆ **Explains**

Ex:- Explains the causes of environmental problem and diseases such as malnutrition.

### ◆ **Describes**

Ex:- Describes the different stages of human life, the changes that occur during adolescence and the used of family resources.

### ◆ **Identifies the relationship**

Ex:- Identifies the relationship between saving - investment - expenditure, personal environmental hygiene - health.

### ◆ **Questions**

Ex:- Questions to know about consumer rights and clothing care procedures.

### ◆ **Collects information, Analyse**

Ex:- Collects information regarding the savings made by different families, electricity used by them and details of house hold equipment are collected and analysed.

### ◆ **Draws diagrams, make models and explains**

Ex:- Draws the diagrams, make models of household equipments and explain.

### ◆ **Appreciates**

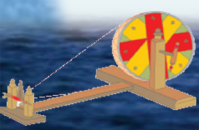
Ex:- Appreciates the finishing touches to clothing, efforts to care for family members.

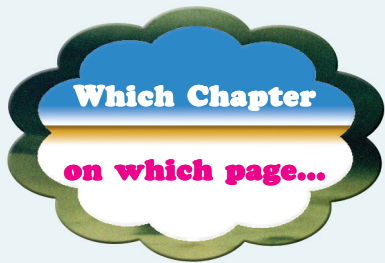
### ◆ **Values**

Ex:- Values are practiced in personal, family and social life.

### ◆ **Applies in daily life**

Ex:- Applies in daily life as a dynamic consumer, lead a life free from communicable diseases and malnutrition.





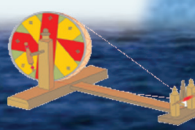
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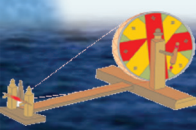


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# What is Home Science?

Home Science is a wide and diversified subject. Yet many people believe that Home Science as name it self indicates that it is related to Home.

- **How common man thinks about Home Science?**
- **What are the components of Home Science?**

Home Science is concerned with home, health and happiness of all the people living in it. Home Science is an interdisciplinary field that prepare young learners for the two most important goals in their lives`caring for their home and family as well as preparing for career or vocation in life. Now-a-days men and women share the responsibility of a home and family equally. They need to make use of the resources available to make their live comfortable. In this chapter we will know about the scope of science and art behind Home Science and different professional avenues available to us after specilizing in this field.

## Learning Outcomes

### The learner...

- ◆ Explains the meaning and importance of Home Science.
- ◆ Identifies employment opportunities obtained for both men and women by studying Home Science.
- ◆ Applies the different components of Home Science in daily life situations.
- ◆ Explains different divisions of Home Science.
- ◆ Identifies various vocational opportunities available after studying different components of Home Science.

## 1.1 Meaning of Home Science :

Home Science means Science of home management. It 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 efficient and scientific use of our resources. Home Science means the art of utilising resources and the science of achieving a healthier, happier family and a

successful career. In defining Home Science 'Art' and 'Science' words were used because Home Science teaches to use the available resources through which beautiful, harmonious environment is created. At the same time it gives us the knowledge of scientific procedure in achieving harmonious house. Home Science makes us to know about varieties of food required to our body and their effect on our body. Hence it is a "Science". Along with that it makes us to select the valuable food which is organised attractively. So, 'it is an Art'. In this way integration of Science and Art change our life in to happy.

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 peaceful life. This essential skill is also learnt by studying Home Science. Home Science draws important parts of its content from pure science discipline such as Biology, Physiology and Hygiene. It also draws its content equally from Economics, Sociology, Physiology Community development information media and technology. They make it interdisciplinary field which draws from the strength of science and arts courses. This combination of science and art holds true in all the areas of Home Science. For example :

- The interpersonal communication among the 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 resource that you use.
- The environment around you.
- The skills present in you and the environment that can lead to successful career.

### Activity-1

Fill the following table with the works that you do at home which are considered as a part of art and science. One example is given in the table

Activity	Art	Science
• Taking bath	feel fresh and clean	dirty germs are removed from body. Pores on skin get open
• Cleaning the house		
• Caring for children		

### *Check Your Progress...*

- 1) What are the components of Home Science?
- 2) Write about few integrated areas of 'art' and 'science' in Home Science?

## 1.2 Relevance of Home Science :

- What are the relevances of Home Science?

With changing social and economic situations managing home requires the effort of all family members. Now-a-days women are working more than men, at office and at home. Home Science opens up a large areas of possible job opportunities for both men and women. This knowledge helps us in the improvement of not only your home and personal life but also your professional life. The skills gained through Home Science help to improve your personal satisfaction and family's economic condition. As in Home Science you will learn several skills that can enable you to set up home based enterprises like catering unit, day care centre.

### Activity-2

Do you agree with the following statement.? Give reasons.

Situation	Agree / Disagree	Reason
<ul style="list-style-type: none"><li>• Only mother can look after a sick child.</li><li>• Washing, ironing folding is best handled by women only.</li><li>• Money is best managed by men.</li></ul>		

Some specific works allotted to men and women inside and outside the house was based on their social behaviour. Any work can be done by both men and women. Only mother can look after children is not correct even father can do that work. Works like washing, cooking is done by men in hotels. With this we can understand that no specific work is allotted for men and women. All types of work can be done by both men and women.



### *Check Your Progress...*

- 1) What is the impact of Home Science on the human life?
- 2) Which skills are developed through Home Science.

## **1.3 Home Science - A Discipline and Profession :**

- Why Home Science is considering as profession?

Home Science cover a few areas of specialization such as Food and nutrition, Resource Management, Human development Fabric and apparel science. We learn and develop good interpersonal relationship with family members and outsiders. We also learn to manage our resources, time, energy and money so that we get maximum satisfaction.

We value our traditional knowledge experience offered to us by our parents and grand parents we should continue and value this. The advance in science and technology helps to face and overcome the changing socio, economic situations and 21<sup>st</sup> century challenges.

Home Science 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 daily life situations.

## **1.4 The importance of Home Science :**

- Why should we study Home Science?

Through Home Science you can learn to use resources effectively, health nutritious diet. You can use this knowledge for the improvement of life and home. You can satisfy the family members. You can use the skills gained to improve the economic condition. You will be ready to fulfill the responsibilities at home. Now-a-days women are wokring at home and also outside. So they are Home Science help them to share responsibilities equal to men and enable to build beautiful home and conflict free progression. It also helps you to utilise time and energy effectively. Thus Home Science is useful in becoming responsible citizen, good parents and to create a sucessful home makers.

## **1.5 Misconcepts about Home Science :**

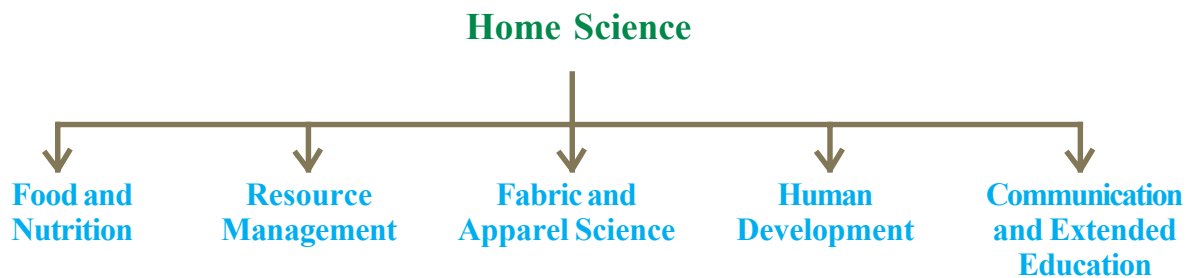
- What are the misconcepts about Home Science?
- Through Home Science is developed as wide and extensive subject, but in view of common men there are some misconcepts about the subject. Let us observe them.
- A common mans perception is that Home Science is limited to cooking, laundry and stitching, ironing.
- Home Science is meant for only girls. Thats why only girls need to study this.

- Home Science can be learnt from mother (or) grandmother, it does not require formal study.
- Home Science does not lead to a career, it teaches all aspects related to Home.
- By studying all the chapters in this book, we can remove all these misconcepts and we feel that Home Science is a branch of Science only.

## 1.6 Constituent areas of Home Science :

- What are the major areas of Home Science?

There are five major component areas of specialization in Home Science.



The above components are further divided into following specialization :

- 1) Food and Nutrition :
  - i) Food Science
  - ii) Nutrition - Clinical Nutrition and Community Nutrition
  - iii) Institutional Food Service
- 2) Resource Management :
  - i) Resource Management
  - ii) House maintenance and equipment
  - iii) Interior decoration
  - iv) Consumer Education
- 3) Fabric and Apparel Science :
  - i) Clothing construction
  - ii) Textile Science
  - iii) Textile designing
  - iv) Garment designing
  - v) Care and maintenance of clothes

- 4) Human Development :
  - i) Child Welfare
  - ii) Adolescence, marriage and family guidance
  - iii) Care the elders
  - iv) Care of special children
- 5) Communication and Education Extension :
  - i) Media for communication
  - ii) Programme planning and evaluation
  - iii) Training and capacity building
  - iv) Management of community service
  - v) Nonformal Education

These above options are the part of higher studies and not of 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 child education. You may visit the NIOS website "www.niosorg" for more information.

***Check Your Progress...***

- 1) Explain the importance of Home Science in daily life?
- 2) What are the misconcepts and facts about Home Science?

### **1.7 Employment opportunities in Home Science**

<b>Knowledge / Skill</b>	<b>Wage employment opportunity</b>	<b>Self employment</b>
I) Catering	a) Staff in canteen, restaurant b) Cook c) Service staff	a) Owner of the canteen b) Food service from home c) Conducting hobby classes
II) Food preservation Bakery and Confectionary	a) Production b) Training of service staff c) Incharge of community center	a) Owner of production unit b) Home based production service c) Conducting hobby classes



Knowledge / Skill	Wage employment opportunity	Self employment
III) Interior decoration	a) Interior designer b) Furniture designer c) Staff at show room	a) Interior designer b) Furniture designer c) Show case and window display designer
IV) Art and crafts	a) Staff at government emporium c) Staff production unit	a) Running own shop b) Home based craft c) Conducting hobby course
V) House keeping and laundry service	a) Staff at hotel and guest houses b) Facilitating manager	a) Running a guest house b) Paying guest facility c) Contact services
VI) Dress designing, Garment constitution Textile designing	a) Staff in a production / exporting unit b) Staff textile designing unit or small shops	a) Owner of shop b) Home based services c) Conduct hobby classes
VII) Play school / creche pre school	a) Supervisors, Teacher at creche, play school b) Schools, colleges	a) Owner of creche / play school etc. b) Caring of children c) Conducting tuition at home d) Short term classes
VIII) Social welfare and consumer training	<ul style="list-style-type: none"> <li>• Social service</li> <li>• Research Assistant</li> </ul>	<ul style="list-style-type: none"> <li>• Advisor</li> <li>• Running NGO</li> <li>• Consumer protection</li> <li>• Services in savings</li> </ul>

The school level courses in Home Science gives you basic knowledge in subject. In order to get ready for job you need to do study advanced courses offered by number of universities.

### *Check Your Progress...*

- 1) List out the employment opportunities in the five specialization areas of Home Science.
- 2) Give examples of home based self employment opportunities in the area of Home Science.

## **Key Points**

- Home Science teaches everything concerned with home.
- Home Science is useful for both men and women.
- Home Science need to be studied as formal education.
- Home Science means the art of utilising resources and the science of achieving healthier, happier family and a successful career.
- Home Science has five basic component areas. They are,  
(1) Food and nutrition (2) Resource management (3) Textile and clothing  
(4) Human development (5) Extension of information and education.
- Home Science provides employment opportunities.

## **Practice for learning outcomes**

- 1) What is Home Science?
- 2) What is the difference between wage employment and self employment?
- 3) Discuss the relevance of Home Science in your day to day life with suitable examples.
- 4) List out the different component areas of Home Science.
- 5) Explain various employment opportunities in the area of Home Science.
- 6) Home Science is integration of Science and Art Explain with suitable example.



# Food and it's Nutrients

'Eat to live, not live to eat' is a saying by our elders. Food forms the integral part of our life. Food has physical and social impact on us.

Now you make a table of what you ate yesterday.

Breakfast	Lunch	Snacks	Dinner

- Did you have the same or different food items at all the four times of the day?
- What are the benefits and drawbacks of taking same food items daily?
- What are the nutrients present in the food you take?
- What diseases may occur if nutritious food is not taken?
- How can you say the food that you are eating is healthy?
- Presently, are you following any healthy eating habits? or planning to follow any?

## Learning Outcomes

### The learner...

- ◆ Identifies the relationship between food and healthy living.
- ◆ Explains nutrients in food, importance of fibre and water in diet, causes and symptoms of deficiency diseases.
- ◆ Gives examples for the source of food for carbohydrates, proteins, fats, vitamins and minerals.
- ◆ Applies the knowledge and takes balanced diet in their daily life.

## 2.1 Food and its importance for healthy living

Food satisfies our hunger and also provides energy for day to day living. Human body is made up of billions of cells. The energy needed for these cells to grow, formation of new cells, body tissue repair and to run body functions smoothly, is derived from the food.

### **Influence of food on us :**

- A) Energy :** We do many activities like walking, playing, sitting, talking. For all these we need energy. Even while sleep body functions will be going on so we need energy all the times we get this energy from the food we take.
- B) Growth and repair of tissues :** You might have heard this 'you were so small, you seem to have grown up so soon'. New cells are added to help the body to grow in size and also to replace the dead and damaged cells. Therefore, food helps not only in growth but also in the repair of tissues.
- C) Strength to fight against diseases :** You may have heard about immunity boosting foods. For example we should take, Citrus fruits for Vitamin C, Almond and Sunflower seeds for Vitamin E. Many food materials have properties to fight against diseases. Eating a variety of food items gives us immunity and strength to fight against diseases.
- D) Food-Social impact :** Wherever there is a gathering there is food, be it a function, friends or relatives get together. We usually offer food or a drink when guests come to our house. We take special care in cooking and serving food on special occasions. So we can say food reflects our social sense and promotes a sense of community.
- E) Food-Psychological impact :** Your mother feels satisfied when she feeds you with your favourite dish. You feel happy when your father brings your favourite food item. Food satisfies our mental happiness.

Sometimes we feel satisfied when we eat a food item in a hotel. When we go outside places we crave for our local food. We feel extremely satisfied when we return and eat our normal food. Familiar food items make us feel secure. Similarly a baby gets emotional security while being breastfed.

You offer your friends/relatives any food or invite for lunch, they are a token of friendship and attention. Eating and sharing of food with family promotes feeling of love, affection and emotional security.

## **2.2 Nutrition and Nutrients**

Though food satisfies our physical, social and psychological needs, the main purpose of taking in food is to make our body function properly.

**Nutrition is the study of taking in food, its digestion, absorption and letting out unwanted material.** Food has complex chemical substances in it. Human body cannot use them directly. They have to be broken down into simpler substances so that they can be absorbed and utilised to give energy. This is called as digestion.

The complex chemical substances present in food are called nutrients. They are :

- Carbohydrates
- Proteins
- Fats
- Vitamins
- Mineral salts
- Water

Carbohydrates, proteins and fats are needed in larger amounts, so they are called macronutrients. Vitamins and minerals are required in very small amounts, so they are called micronutrients. We shall learn about nutrients in detail.

### 2.2.1 Carbohydrates- Energy giving food

- What did you have in breakfast today?

If you had idli with chutney, then you ate carbohydrates and proteins.

Yes, rice, wheat, jowar, potato, sugar etc have carbohydrates.



Functions of Carbohydrates	Sources
<ul style="list-style-type: none"> <li>• Gives energy and feeling of fullness.</li> <li>• Increases the bulk of our food.</li> <li>• Helps to make the food tasty.</li> </ul>	<ul style="list-style-type: none"> <li>• Carbohydrate sources : cereals like wheat, rice, bajra, maize, potatos, sweet potatos, colacasia etc.</li> <li>• Sugar sources : sugar, honey, jaggery, sweets, jam, murraba etc.</li> </ul>

Carbohydrates are present in simple sugar and complex sugars. Glucose is the simplest form of sugar, it get oxidised in our cells to give energy. Fructose is another simple sugar seen in fruits and honey. In table sugar sucrose, in milk lactose and in germinating seeds maltose are present.

Plants produce glucose molecules by photosynthesis, many glucose molecules combine to form complex carbohydrate called starch. In potatoes, rice, wheat, sweet potatos, starch is present. In the digestive system starch is broken into glucose.

In plants cells, the cell wall is made of carbohydrates called cellulose. Actually our body cannot digest cellulose. This indigestible carbohydrate is called fibre.



One gram of carbohydrates give 4 Kilo calories of energy. An adult person needs 400-420 grams of carbohydrates per day.

### 2.2.2 Proteins

If you are taking milk, meat, fish, eggs, pulses, curd, cheese, legumes etc, you are taking proteins. Proteins are needed for muscle building and repairing of cells and tissues. Almost half the proteins in our body are in the muscle and the rest of it is in bones, cartilage, and skin.



We obtain proteins from both animal and plant food sources. One gram of protein gives 4KCal of energy. An adult needs, 1gm of protein per 1 kilogram of body protein. For example if a person weighs 45 kg, then his protein requirement would be approximately 45 gm /day.

Functions of Proteins	Sources
<ul style="list-style-type: none"> <li>• Needed for forming of new cells in the body.</li> <li>• Repairing old and damaged cells.</li> <li>• Healing of wounds.</li> <li>• Needed in formation of blood, enzymes and hormones.</li> </ul>	<ul style="list-style-type: none"> <li>• Animal sources: Meat, eggs, fish, poultry, milk, curd, cheese etc.</li> <li>• Plant sources: All cereals, pulses, peas, soyabean, nuts etc.</li> </ul>

At a growing age, that is in infants, childhood and adolescents, taking enough protein is important otherwise growth can be slowed. Vegetarians who do not eat meat may compensate protein need by taking cereals, millets and pulses.

### 2.2.3 Fats

If you are eating ghee, fried foods, chocolates, you are taking fats.

One gram of fat gives 9 K. Cal of energy. Although fats give more energy than carbohydrates, we have to take a little amount of fat. An adult needs only 30gm of fat everyday. \

- According to the members in your family, approximately calculate the amount of fat (oil, ghee) needed for your family per month.

Functions of fats	Sources
<ul style="list-style-type: none"> <li>• Gives energy, Help to keep our body warm.</li> <li>• Help in utilization of fat soluble vitamins.</li> <li>• Provide protection to delicate organs like heart, liver and also provides padding on our skeleton and muscles by forming a layer on them.</li> <li>• Makes the food tasty.</li> </ul>	<ul style="list-style-type: none"> <li>• Animal sources: Meat, eggs, fish, poultry, milk, curd, cheese etc.</li> <li>• Plant sources: All cereals, pulses, peas, soyabean, ground nut oil, coconut oil, vanaspathi etc.</li> </ul>

We get fats from plant and animal sources. Adults should be cautious in taking saturated fats like cholesterol present in butter, ghee and red meat. Excess of these substances could lead to obesity, diabetes, cardiovascular diseases and cancer.

### 2.2.4 Minerals

You already know that vitamins and minerals are called micronutrients.

- From which food sources do we obtain minerals?

By eating all kinds of food items you will get enough minerals. Minerals are inorganic elements found in body fluids and tissues. Calcium (Ca) and Phosphorous (P) are present in the body in large amounts in bones and teeth. Sodium (Na) and Potassium (K) are also needed in large amounts to carry electrical signals that make nerves and muscles work. Minerals sodium, potassium, calcium, phosphorus, magnesium and sulphur which are needed in larger amounts for our body are called macro-minerals.

Iron, iodine, zinc, copper, selenium, molybdenum, fluorine, cobalt, chromium which are needed in less amounts are called micro-minerals.

### Calcium

Functions	Sources
<ul style="list-style-type: none"> <li>• Helps bones to grow and become strong.</li> <li>• Makes teeth healthy and strong.</li> <li>• Helps in clotting of blood.</li> <li>• Helps in movement of muscles.</li> </ul>	<p>Milk and its products like cheese, curd, butter milk etc.</p> <p>Green leafy vegetables like spinach, fenugreek, curry leaves, drumstick leaves and coriander leaves.</p>

### Iron

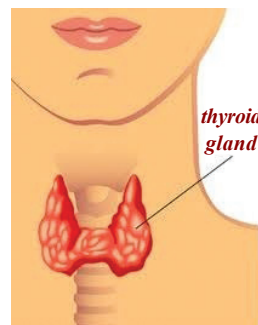
Dietary iron is an essential micro-nutrient needed for the formation of haemoglobin(Hb) in red blood cells. Hb plays an important role in transport of Oxygen ( $O_2$ ).

The term 'haem' means 'iron' while globin refers to protein. In the adolescence period iron requirement increases. Intake of folic acid tablets, which are supplied through Primary Health centres and anganwadi centres, by girls and pregnant women for 110 days helps to overcome severe anaemia. By taking green leafy vegetables like spinach, mustard leaves, fenugreek, mint etc, whole cereals and legumes, liver, heart, kidney and egg yolk, jaggery, dates, pomegranate we get enough iron for our body.

## Iodine

You might have seen the label iodised salt on salt packet.

Thyroid gland located near our neck region uses iodine to produce thyroxin hormone. This hormone regulates the life processes thereby helps in maintaining good health and body growth. It is difficult to get sufficient iodine from the food, so we can get iodine from iodised salt.



## Vitamins

Though vitamins are required in very small amounts in our diet, they are essential for proper functioning of the body. Vitamins are classified into two groups.

- Fat soluble vitamins : Vitamin A, D, E and K
- Water soluble vitamins : Vitamin B complex and Vitamin C

Vitamins	Functions	Sources	Deficiency disorders
<b>Fat soluble vitamins</b>			
Vitamin A Retinol	<ul style="list-style-type: none"> <li>• For better vision</li> <li>• Keeps skin healthy</li> <li>• Necessary for normal growth and development.</li> <li>• Provides resistance to diseases.</li> </ul>	Vegetables and fruits of yellow and red colour, milk, cheese, egg yolk, butter, ghee, liver, green leafy vegetables.	Night blindness (cannot see in dim light) loss of vision, dry eyes, scaly skin
Vitamin D Calciferol (Sunshine Vitamin)	Makes teeth and bones strong with calcium and phosphorus.	Fish oil, milk, cheese, butter, ghee, etc. Vit D is synthesised when the body is exposed to sunlight.	Osteoporosis in adults (Bole bones disease) Rickets (Softening and deformity of bones in children)
Vitamin E Tocoferol	Antioxidant.	Whole pulses and cereals	Infertility

Vitamins	Functions	Sources	Deficiency disorders
Vitamin K Phylloquinone	Needed in the process of blood clotting	Green leafy vegetables	Over bleeding from wounds.
<b>Water soluble vitamins</b>			
Vitamin B Complex	Helps the body to use energy. Keeps the digestive system healthy.	Pulses, whole grains, cereals, wheat, rice etc.	Anaemia
Vitamin C Ascorbic acid	Keeps teeth and gums healthy.	Fruits, leafy vegetables, potatoes, sprouted grains, guava and amla.	Scurvy (In this disease gums swell and bleed) (Swelling and bleeding of gums)

### 2.2.5 Dietary fibres

The indigestible carbohydrate in our body is called dietary fibre or roughage. Though it is not digested, it helps in smooth passage of food in digestive tract. Fibre is obtained from foods of plant origin only.

#### Foods rich in fibre are

- Whole wheat flour, dalia (porridge)
- Peels of fruits and vegetables like guava, apple, pineapple, banana. Whole pulses like lentil, rajmah, bengal gram, peas and beans, carrot, cauliflower, ridge gourd, cluster beans, green leafy vegetables

When foods are processed there is loss of fibre, vitamins and minerals. For example : polished rice, sieved the wheat flour.

Taking dietary fibre prevents constipation, cancer of large intestine, diabetes and obesity.

#### Water

Whenever we go outside for few hours, we first pack a bottle of water. Especially 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 fluids like buttermilk, milk, fruit juices etc.

Though water is not a nutrient, yet it is very important to our body. Water accounts for 70% of our body weight. A normal healthy person should drink 3-5 litres of water per day.

- Water is a constituent part of blood and other body fluids.

- It helps to digest food and takes the nutrients from the food to the different cells of our body.
- It helps to keep our body temperature constant.
- It helps to remove the waste products from the body in the form of urine and sweat.

### *Check your progress.....*

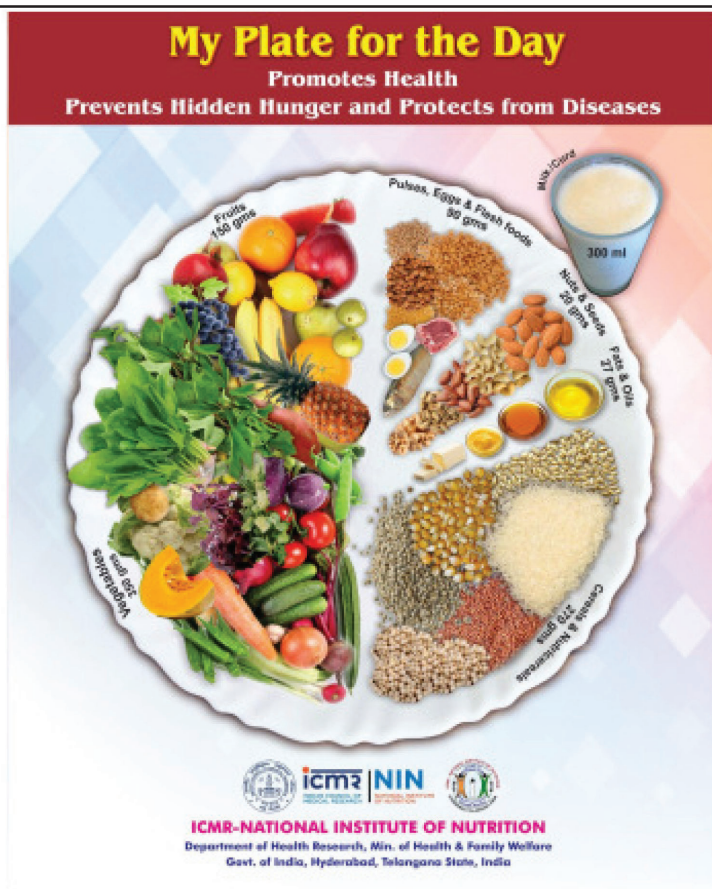
- 1) What are the essential nutrients present in our food?
- 2) Rani, aged 13 years is suffering from anaemia. What dietary recommendations would you give her?
- 3) Mention the sources for roughages.
- 4) Though water is not a nutrient, why is it important for us?

## 2.3 Balanced diet

Now you know about the essential nutrients in our food. Balanced diet is one which contains all the nutrients in required proportions. By taking balanced diet we can keep ourselves healthy.

Balanced diet should provide around 50-60% of total calories from carbohydrates, 10-15% from proteins and 20-30% from fats.

### MY PLATE





The concept 'My Plate' has been designed by 'National Institute of Nutrition' (NIN). It shows the nutrients to be included in our meal plate per day from all food groups.

Cereals	- 270 gm	Pulses, eggs, meat	- 50 gm
Vegetables	- 350 gm	Nuts	- 20 gm
Fruits	- 150 gm	Fats, oils	- 27 gm
Milk / curd	- 300 ml		

- Pulses are substitute for eggs / fish /meat.
- Vegetables may be consumed either in cooked form or as salads.
- It's good to eat fresh fruits than fruit juices.
- Use different varieties of cooking oils.
- ◆ **By taking 'My Plate', energy requirement of 2000 Kcal/day can be met from all the food groups by our body.**

#### Uses of regular consumption of foods in proportions as per the model plate

- ◆ improves immunity and resistance to diseases.
- ◆ maintains good microbial flora (beneficial bacteria in the intestine).
- ◆ prevents diabetes mellitus and cardiovascular diseases.
- ◆ maintain appropriate alkalinity in the body and thereby reduces inflammation and decreases chances stone formation in kidneys.
- ◆ prevents insulin resistance and maintains appropriate insulin sensitivity and glycemic index.
- ◆ ensures adequate intake of fibre and therefore prevents constipation.
- ◆ prevents adverse effects of environmental pollution and toxins such as heavy metals and pesticides by working as a detoxifying diet.

### 2.3.1 Malnutritional diseases

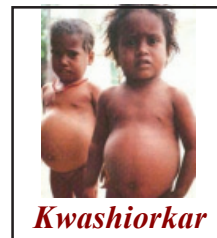
Eating food that does not have at least one or more than one nutrients in required amount is known as malnutrition. Poor health, lack of awareness on nutritional habits, socio-economic factors are the main reasons for malnutrition in our country. Aware of nutritious food and taking balanced diet will prevent us from malnutritional diseases.

Let us study some common deficiency diseases.

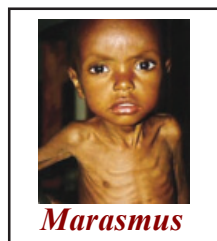
## Protein energy malnutrition

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

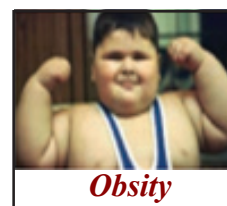
- Kwashiorkar disease occurs when the protein intake is deficient. watery diarrhoea, lack of growth, pot like belly etc are the symptoms of this disease.
- When both protein and carbohydrates are insufficient for a prolonged period, then a disease known as Marasmus occurs. Muscle atrophy, lack of growth are the symptoms of this disease.
- Obesity occurs when there is excess intake of carbohydrates in the diet. Obesity is increasingly becoming a problem due to recent changes in the life style and lack of physical activity.



***Kwashiorkar***



***Marasmus***



***Obsity***

**Vitamin A deficiency :** This is fat soluble vatiamin

### Vitamin A deficiency

- The early symptoms of vitamin A deficiency among children can be recognised by identifying 'bitot spots'
- In severe deficiency cases, serious damage occur to cornea.
- Conjunctivitis : redness, itching and watery eyes
- Night blindness : The child cannot see in dim light. Improvement in the condition can occur if a diet rich in vitamin A is taken.
- Untreated cases- results in corneal ulceration, keratomalacia and irreversible blindness.
- More than 40,000 children in India are becoming blind every year because of Vitamin A deficiency. This could be easily prevented by giving awareness.



***bitot spots***



***Conjunctivitis***

## Iron deficiency

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

### Major causes of anaemia in our country are :

- 1) Inadequate intake of dietary iron, if taken also absorption may be poor.
- 2) Hookworm infestation mainly found in children and adults.
- 3) Excessive blood loss during delivery in women.

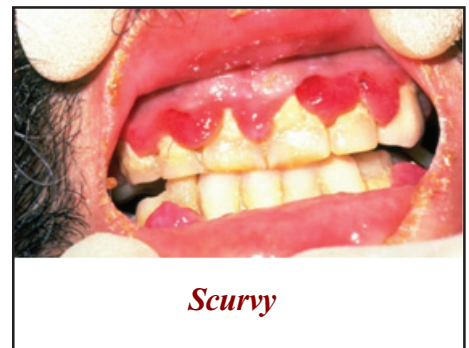
## Vitamin B-complex deficiency

Vitamin B complex and vitamin C are water soluble vitamins. So cannot be stored easily and get excreted through urine. These are intolerant to heat, so are easily destroyed during heating, drying, cooking and food processing.

Common symptoms of Vitamin B complex deficiency are sore mouth, sore tongue and cuts at the angles of mouth. In some people symptoms like diarrhea and dysentery may also occur. In some loss of appetite and difficulty in digesting food may be seen. Beri Beri disease occurs when people eat polished rice. Consumption of brown rice instead of white rice prevents the occurrence of this disease.

## Vitamin C deficiency

Absence of fresh fruits and vegetables in our diet often leads to Vitamin C deficiency disease called Scurvy. In this disease 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 a regular basis.

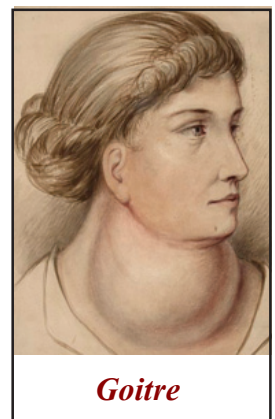


## Iodine deficiency

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

Goitre is generally seen among adolescents, young adults and children. Females are more affected than males. A severe deficiency of Iodine during pregnancy may lead to cretinism (severe mental retardation) in infants.

The only solution to this problem is to eat iodized salt. For this reason our government has banned the use of non iodized salt. Store iodised salt in air tight containers and cook salted food in a closed vessel to prevent loss of Iodine.



## Calcium deficiency

Without adequate calcium and vitamin D bone forms poorly in children and in older people bones become brittle. As age, progress, they are at risk for a disease called Osteoporosis. Osteoporosis occurs mostly in women after the age of 50.

Pregnant woman need additional calcium to support the growth of foetus. Gain in skeletal weight is more in the age of adolescence. So in adolescence age Calcium need is more. Girls need 200mg/day and boys need 300mg/day. Physical activity and exposure to sun light which provides vitamin D is essential for bone strength in the body.

### 2.3.2 Why should we eat variety of food?

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

So what should we do to remain healthy?

We should eat food which provide all the nutrients. There is no single food variety which gives all the nutrients. Therefore you must eat varieties of food items so that our body get all the nutrients in the required amount and we do not suffer from deficiency diseases.

### 2.3.3 Relationship between nutrition and health

Knowledge on nutrition helps us to know about different types food items to be taken in the diet and their uses in order to maintain good health. The World Health Organisation (WHO) has defined health as "the state of complete physical, mental and social well being but not just the absence of disease". Hence to be healthy in the real sense, one must have not only physical wellness but also have a proper mental and social outlook.

#### *Check Your Progress...*

- 1) What is a balanced diet?
- 2) Explain the malnutritional diseases.
- 3) Mention Vitamin 'A' deficiency diseases.
- 4) Why should we eat variety of food items?
- 5) Mention the food sources of calcium.

### Key Points

- Food influences us physically, socially and psychologically.
- Carbohydrates, proteins and fats are needed in larger amounts for our body, so they are called as macronutrients.

- Vitamins and minerals are required in very small amounts for our body, so they are called as micronutrients.
- Calcium is needed for formation and strengthening of bones and teeth and also helps in clotting of blood.
- Iron is needed for formation of haemoglobin (Hb). Hb plays an important role in transport of O<sub>2</sub>.
- Iodine deficiency leads to hypothyroidism and goitre.
- Fat soluble vitamins are A, D, E and K. Water soluble vitamins are vitamin B complex and C.
- Water accounts for 70% of our body weight.
- Balanced diet is one which provides all the nutrients in proper proportions.

### Practice for learning outcomes

- 1) What is malnutrition?
- 2) Your friend Ramu's gums swelled up and are bleeding. What may be his problem. What suggestions would you give him regarding food intake?
- 3) What are macronutrients and micronutrients?
- 4) How are proteins useful to our body? Mention the food sources of them.
- 5) Explain how food influences us in different aspects.
- 6) Explain water soluble vitamins, their sources, functions and deficiency disorders.
- 7) The carbohydrate that cannot be digested by us. ( )  
 A) Glucose                      B) Starch                      C) Cellulose                      D) Fructose
- 8) Deficiency of dietary iron causes. ( )  
 A) Anaemia                      B) Cretinism                      C) Goitre                      D) Rickets
- 9) Match the following :
 

i) Vitamin A	( )	a) Calciferol
ii) Vitamin E	( )	b) Retinol
iii) Vitamin D	( )	c) Phylloquinone
iv) Vitamin C	( )	d) Tocoferol
v) Vitamin K	( )	e) Ascorbic acid





# Food Groups

- Observe your meal plate, how many colours do you see in the plate?

It is recommended by nutritionists that all the rainbow colours should be in our plate, that means our plate should include fruits, vegetables, pulses, dairy products and rice.

You have already learned about essential nutrients needed for our body and about balanced diet.

No single food item has all the nutrients. For example if you eat rice with dal, rice is rich in carbohydrates and dal in proteins. If you won't include leafy vegetables and fruits you will be missing dietary fibre and some of the vitamins and minerals. So it is necessary to select different food items so that our body gets all the nutrients it requires.

- What is a healthy diet?
- What are food groups?
- How to plan for a family meal?

You will learn more about the above concepts in this lesson.

## Learning Outcomes

### The learner...

- ◆ Identifies food groups in which different nutrients are present.
- ◆ Explains about five food group systems.
- ◆ Classifies food sources into correct food groups.
- ◆ Plans family meals according to the health needs of members in the family.
- ◆ Consumes food items belonging to all food groups in their daily life.

### 3.1 Food Groups

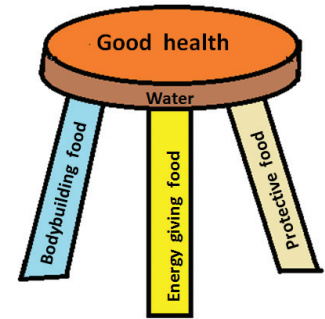
Complete the table

Food item	Nutrients	Function
Roti, rice		
Dal, egg, fish	Proteins	
Fruits, vegetables		Protective food

From the above table, you can see that based on function items, foods are broadly divided into three groups. Again in each group several types of food items are there.

If we include food items from all food groups in our diet, we can obtain all the nutrients. If we do not include food items from any food group, our health damages like, three legged stool falls down even if one leg is broken.

Variety in food is not only the spice of life but also the essence of nutrition and health. Now we shall learn about the widely known five food group system.



Food groups	Food Sources	Nutrients present
Cereals, grain and their products	rice, wheat, Ragi, Bajra, maize, Jowar, Barley, wheat flour etc.	carbohydrates, proteins, vitamin B complex, iron, fibre
Pulses and legumes	bengal gram, black gram, green gram, red gram, peas, rajma, soya bean, soya nuggets etc.	proteins, carbohydrates, vitamin B complex, iron, fibre
Milk, egg and meat and their products	milk, curd, paneer, cheese, buttermilk.  meat, chicken, liver, fish, eggs	proteins, fats, vitamin B complex, calcium, vitamin A  protein, fat
Fruits and vegetables	fruits such as mango, guava, orange, papaya, banana, apple.  vegetables such as carrot, pumpkin, tomato etc.	vitamin A, Vitamin C, Fibre

Food groups	Food Sources	Nutrients present
	green leafy vegetables like amaranthus, spinach, coriander leaves, fenugreek leaves, drumstick leaves fruits like Amla and pomegranate.  some more vegetables like brinjal, ladiesfinger, capsicum, beans, onion, drumstick, cauliflower, potato etc.	vitamin A, calcium, iron, fibre  carbohydrates and fibre
Fats and sugar	fats: butter, ghee, groundnut oil, mustard oil, coconut oil.  sugars: sugar, jaggery, honey	carbohydrates ,fats  carbohydrates

## 3.2 The food group system

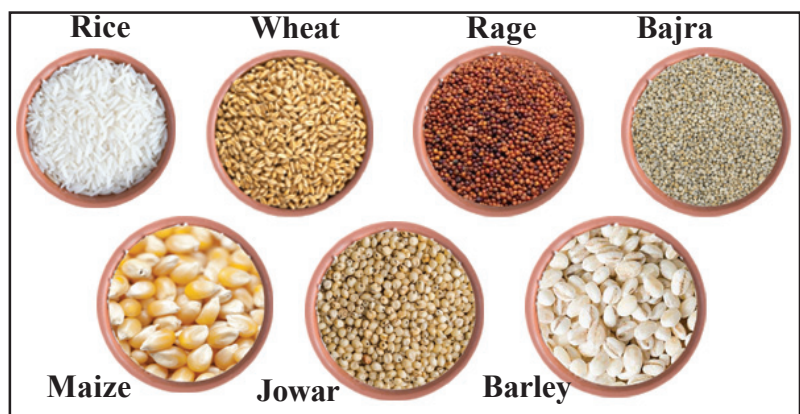
If we substitute one food item for the other in the same group, we will get almost the same food nutrients. So it will be beneficial if we learn more about each food group.

### 3.2.1 Cereals

Cereals like rice, wheat, maize, jowar form the main component of our diet.

Generally rice, wheat, maize, sorghum form staple food in many states in our country.

Cereals are rich in carbohydrates. They also have iron, vitamin B complex, proteins, Vitamin E, fibres and traces of minerals.

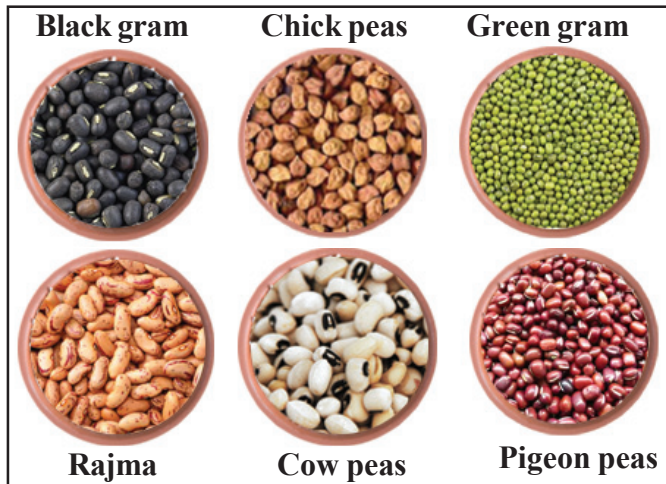


Whole cereals contain a good amount of fibre. Fibre does not give energy but add weight to the food and helps in movement of food through the digestive tract in our body. So it is good to eat whole grains which means less polished or unpolished like brown rice .If it is polished the upper layer is lost so fibre and some nutrients are also lost. eg. maida flour.

Consuming whole grains reduces the risk of heart diseases, diabetes type-2, prevents constipation and maintains a healthy digestive system.

We commonly take combination of cereals with pulses. eg. idli with sambar, dal with khichidi.

### 3.2.2 PULSES



Pulses are the seeds produced by the leguminous plants. Pulses are actually the seeds in the pod which are dried for consuming. Pulses are important sources of protein.

The pulses have advantage over animal protein food of being inexpensive and versatile in cooking. They are rich in protein and have fibre and vitamin B, vitamin E, calcium, phosphorus, potassium and iron. They have low glycemic index, that is they

are slowly absorbed into the blood, blood sugar level doesnot increase rapidly. It is good diet for diabetic people.

Most of the grains and peas like bengal gram, black gram, red gram, green gram, rajma form a part in daily diet in our country. Soya beans are also rich in proteins. Soya chunks and soya milk are also good. Sambhar, dal fry, dal makhani, khichidi are popular Indian dishes. Green gram (moong dal) can be given to small babies as they are easily digestible. Chole chick peas and green peas are also very popular.

### 3.2.3 MILK, EGGS, MEAT AND THEIR PRODUCTS :

Milk is the first food for humans. Milk is obtained from different sources such as buffaloes, cows, goats, camel etc.

Milk helps in formation of bone and teeth, prevents cardiac diseases, for growth, boosting immunity, protecting eyesight.

Milk is rich in high quality protein and an excellent source of vitamins and minerals such as calcium, vitamin B<sub>12</sub>, and riboflavin, and also fats. Milk contains 3.4% of fat. It decreases risk of osteoporosis and reduces blood pressure. The Sugar present in milk is lactose. Some people are intolerant to lactose so they are allergic to milk. They have the option to have lactose free milk. Milk products like curd, paneer, cheese also contain all the nutrients.

### 3.2.4 Eggs :

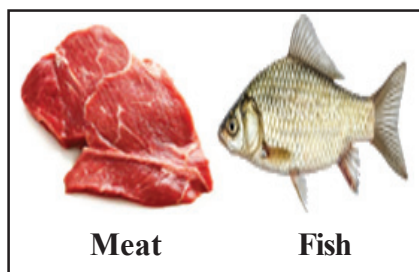
Eggs are an excellent source of protein. Both egg white and yolk have protein. It is better to consume both.

Eggs contain HDL (good - High Density Lipoprotein), Cholesterol which reduces the risk of many diseases. Eggs are highly nutritious and healthy food. There are a number of important nutrients in it including vitamin A, B<sub>2</sub>, B<sub>5</sub>, B<sub>6</sub>, B<sub>12</sub>, D, E and K as well as folate, phosphate, selenium, calcium and zinc. All of these are contained within just one boiled egg, which also contain 6gm of protein as well as 5gm of healthy fats.

The egg white contains more than half the egg's total protein. Yolk contains all the fat of the egg, some proteins, and fat soluble vitamins A, D and E. Egg yolk is one of the few foods, naturally having vitamin D.

Eating eggs is good for eyes. Eggs have choline. Choline helps in growth and maintenance of cells. They have high levels of Omega 3 fatty acids. These are good for heart health.

### 3.2.5 Meat



Meat ranks among one of the favoured food items of the people doing more manual work, which aids in fulfilling most of their body requirements. It is a good source of proteins, zinc, iron, selenium and phosphorous and vitamin A and B complex. Meat products include meat, chicken and fish.

### 3.2.6 Fruits and vegetables

Fruits and vegetables are rich sources of micronutrients like iron, calcium, vitamin C, folate and B complex vitamin. They also contain fibre and macronutrients.



Fresh fruits are nutritionally superior to fruit juices.

Vegetables can be included in our meals in the form of curry, soups, can be mixed with curd, added to pulse to make dal and with rice. They can also be taken raw as salads.

We learnt that meal plate should have rainbow colours i.e., different varieties of vegetables, fruits add colour to your plate.  $\beta$ -carotene rich foods like dark green, yellow and orange coloured vegetables and fruits protect from vitamin A deficiency. Vitamin C is abundantly available in fresh amla, citrus fruits, guava, banana and certain vegetables such as tomatoes.

Green leafy vegetables, legumes, nuts and liver are good source of folic acid. They reduce the risk of anaemia. Vegetables like colocasia, potato, sweet potato and fruits like banana, avocado, pear have good amount of carbohydrates. Vegetables and fruits have dietary fibre which are important for bowel movement, to reduce chronic constipation, hemorrhoids, coronary heart diseases, diabetes and obesity.



- **Which vegetables and fruits should be consumed?**

We should consume fresh, locally available and preferably seasonal vegetables and fruits. No single fruit or vegetable have all the nutrients, Hence we have to eat fruits of different colours.

- **How to prevent loss of nutrients during cooking?**

Vitamins are lost during washing of cut vegetables. So we should wash vegetables before cutting and also cut them into large pieces. Over cooking leads to destruction of vitamin C.

Indian council of medical research (ICMR) recommended that an individual should consume 300-350 gm of vegetables per day.

### 3.2.7 Fats and sugars

Fats fulfill our belly and induce satisfaction. Excessive fat in the diet increases the risk of obesity, heart diseases and cancer. So take just enough fat. Use of reheated fats and oils should be avoided. Minimize consumption of ready to eat fast foods, bakery foods and processed ready made foods prepared in hydrogenated fat.

Cooking oils (liquids) and solid fats together are referred to as fats. Fats increase the taste of the food. For growth of young children high calorie diets are required, this is achieved by inclusion of adequate amount of fats in their diet.

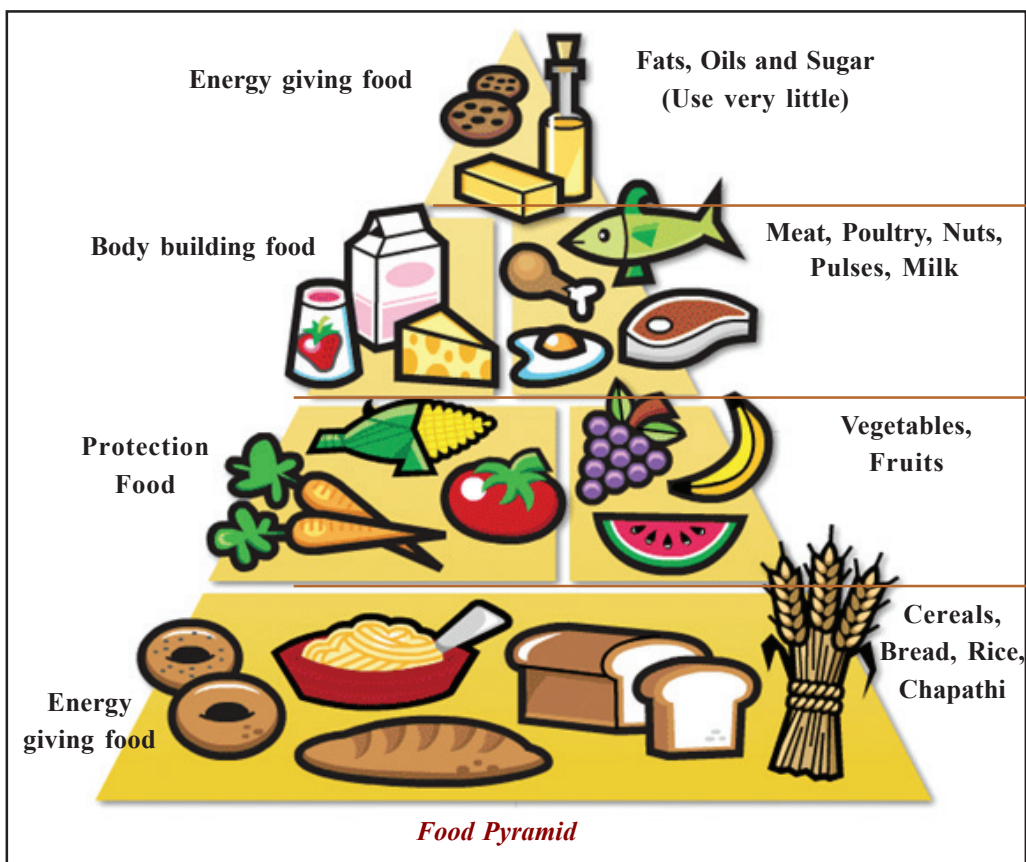
#### *Check Your Progress...*

- 1) What are the food substances useful for the growth of the body?
- 2) Mention the health benefits of milk.
- 3) Mention the food sources for Vitamin C.

### 3.3 Food exchange

Now after learning in detail about each food group, we can see that, if we substitute one food for the other in the same group, we will get almost the same nutrients. This is called food exchange. For example vegetarians can eat pulses instead of eggs and meat. We can eat locally grown guava instead of costly apple.

### 3.4 Pyramid of food groups



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 sugars in less quantity as compared to cereals and pulses which are at the bottom of the pyramid. Use of the food pyramid not only ensures good health but also helps in planning a balanced diet and facilitates selection of alternate foods.

### 3.5 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.

Observe your family meals using the food pyramid to find out whether your meals are balanced or not. Do you realise 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 all kinds of food items.

### 3.6 Meal planning

Meal planning is the simple act of taking some time to plan your meals for a week/day. Plan for yourself and plan for your family.

Meal planning requires food management skills such as,

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

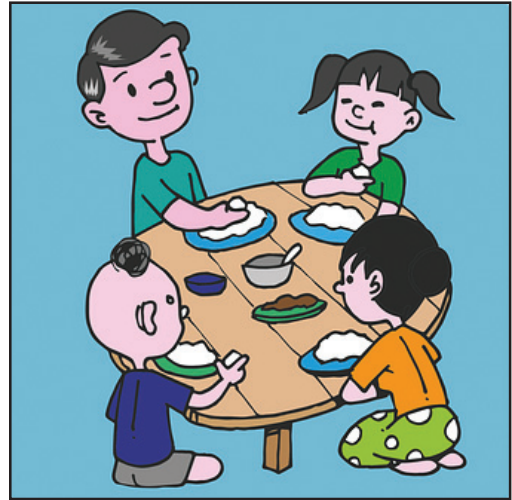
### 3.6.1 Factors affecting meal planning

- Age :** Nutritional requirements vary with age. So the type of food its quantity and quality also change.
- Seasonal availability :** 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 :** In winter season we like to eat energy rich food and also food that help us to maintain body temperature. In summer we would like to eat food that give coolness to the body, so we should select food according to the weather.
- Occupation :** Some people like labourers, sports persons and farmers do more manual work as compared to people like businessmen, shopkeepers, 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. Eg. Pregnant and lactating mothers require more nutrients, a growing adolescence needs more protein and energy rich food, an old person needs a diet which is light and easy to digest.
- Economic considerations :** Income of the 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 meal without increasing the budget? For example use the less expensive nuts such as groundnuts instead of cashew nuts and almonds, soya nuggets instead of paneer and eating guava instead of an orange.

### 3.7 Family meals

After learning about various factors affecting meal planning, now you can certainly list the factors affecting the meal planning of your family. However the most important point is that everyone needs a balanced meal which contains all the essential nutrients that are required by the body, that is proteins, carbohydrates, fats, vitamins A, B, C, D, E, K, 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. You can include one food item from each of the five food groups in every meal. Take an example of a sample menu for Saritha and Lalita who are girls of same age.



S.No.	Five food groups	Meal 1 (Sarita)	Meal 2 (Lalita)
1	Cereals	Chapati	Rice
2	Pulses	red lentil	red gram
3	Milk, eggs, and flesh foods	paneer curry	chicken curry
4	Fruits and vegetables	potato and beans curry tomato and cucumber salad guava	potato and peas curry tomato and cucumber salad orange
5	Oil, ghee and sugar	used for cooking	used for cooking

Like this you can plan meal every day for your family. this is called as family meal or the thali meal.

### 3.8 Food adulteration

Salt... pulses... milk... flour every item is being adulterated now-a-days. For their financial benefit merchants are adulterating the food items. Adding cheaper, sub-standard, inedible substances to the food items is called 'food adulteration'.

Food item	Adulterant substance
Cereals	husk, stones, inferior quality grains, insect infested grains, colours
Pulses	kesari dal, inferior quality grains, insect infested grains, metanil yellow dye
Milk	starch, water, milk of other animals, urea, soap, surf
Cooking oils	argemone oil, artificial colours

Food item	Aduterant substance
Turmeric	'metanil yellow dye'
Coriander powder	powdered cow dung and horse dung, starch, saw dust
Black pepper	dried papaya seeds
Wheat flour	husk
Chilli powder	artificial colour, saw dust, brick powder
Honey	sugar, jaggery syrup
Vegetables	green colour
Sugar	suji, chalk powder
Ghee	suji, dalda

Consumers health is damaged very much by taking this type of adulterated food. At this point consumers should have knowledge of adulterated and unadulterated food. For this we can follow some suggestions given by 'The Food Safety and Standards Authority of India' (FSSAI).

#### Artificial colours in cereals

Take two spoons of cereals in a glass of water and mix. If colours are added to grains, the water gets coloured.

#### Water in milk

By using 'lactometer', milk quality can be known. Another method is, put 2 to 3 drops on a smooth inclined surface, pure milk slip down slowly on the surface making a white mark. If water is added to the milk, they slip down fast without making a mark.

#### Soap in milk

Take 5-10 ml of milk in a bottle. Add same amount of water and shake vigorously. If soap is added to milk, we can see the dense foam.

#### Starch in milk

Add iodine to the boiled and cooled milk. If blue colour is seen, it indicates starch is added.

#### Saw dust in chilli powder

Add chilli powder to a glass of water. Pure chilli powder sinks to the bottom, saw dust floats on the water.

### Activity-1

Take any five food items such as pulses, black pepper, milk, coriander powder, ghee and test if they are adulterated or not. Record your observations in a tabular form.



## Key Points

- The five food groups are Cereals, grains and their products; Pulses and legumes; Milk, eggs, meat and their products; Fruits and vegetables and Fats and sugars.
- Cereals like rice, wheat, maize, jowar form the main component of our diet.
- Pulses are the seeds produced by the leguminous plants.
- Eggs are an excellent source of protein.
- Milk is rich in protein, calcium, vitamin B<sub>12</sub>, riboflavin and also contains fats.
- Fruits and vegetables are rich source of micronutrients like iron, calcium, vitamin C, folate and B complex vitamin. They also contain fibre and some macronutrients.
- Vitamin C is abundantly available in citrus fruits, banana, tomatos.
- If we substitute one food item for the other in the same food group, we will be able to get almost the same nutrients. This is called "food exchange".
- 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 "balanced diet".
- Adding cheaper, sub-standard, inedible substances to the food items is called "food adulteration".

## Practice for learning outcomes

- 1) Name the five food groups.
- 2) Write the food sources for cereals, grains and their products.
- 3) 'Egg is the wholesome food' - Justify the statement.
- 4) Explain adulteration of any two food items.
- 5) Explain the factors affecting meal planning.
- 6) Make a family meal plan for one vegetarian family and one non-vegetarian family for a week.
- 7) Match the following :

i) Wheat	(     )	a) fats
ii) Red gram	(     )	b) protective food
iii) Ghee	(     )	c) more fibre
iv) Fruits	(     )	d) cereals
v) Brown rice	(     )	e) proteins

# Methods of Cooking Food



What type of food was eaten by ancient man? Raw meat, tubers etc. eaten by human. Process of cooking food had been done by human after discovery of fire. Accidentally cooking had been started by early human and they liked it. Now we are following various ways of cooking food. Till now we are eating raw food items like sweet potatoes, carrot, tomato, cucumber, maize and fruits but some food items like wheat, rice, potatoes, eggs, pulses can be eaten only after cooking. Cooked food taste better when compared to raw food. We are using different methods of cooking i.e. roasting, boiling, frying, steaming etc. Let us learn why should we cook food and some cooking methods in this chapter.

- What will happen if food is cooked?
- Which nutrients are lost while cooking food?
- How to enhance nutritive value of food?

## Learning Outcomes

### The learner...

- ◆ Explains the importance of cooking food.
- ◆ Classifies the methods of cooking based on the usage of water or oil.
- ◆ Identifies the changes in cooked food and raw food.
- ◆ Describes the different cooking methods in moist heat, dry heat and frying.
- ◆ Applies the knowledge of cooking food without losing nutrients in their daily life.
- ◆ Gives reasons for cooking the food.
- ◆ Illustrates with examples for enhancing the nutritive value of food.

## 4.1 Importance of cooking food

Why do we cook food?

- People cook food for different reasons while it is better to eat some food as raw such as fruits and vegetables, there are some advantages of cooking food. The reasons for cooking the food are :

- Taste increases - Raw wheat flour do not give any taste but if we make a cake or poori, it will be tastier than row flour.
- Cooked food is soft and easily digested.
- Change occur in form, smell, taste and texture of food after cooking. For example Raw potatos does not taste but when potatos are fried or made into chips, they are tastier to eat.
- Showing diversity in food - By using raw chicken we can make different varieties of dishes like chicken65, chicken biryani, chicken pakodi, chicken curry, tandoori chicken, chicken fry, chicken rolls etc.
- Shelf life of food items will be increased by cooking. Fish curry will be fresh for 2 to 3 days, if we make a pickle with fish it will be fresh for many days.
- Safety ensured - by cooking food germs will be killed. By heating milk, microbes present in it are killed. Milk has leprosy bacteria, by heating bacteria will be killed. Non - vegetarian food items also contain lot of microbes. To avoid invasion of those microbe into our body we have to cook them properly.

We have learnt that there are so many benefits by cooking food, then how to cook food?

Does one method or different methods are required to cook different varieties of food?

## 4.2 Methods of cooking food

What are the methods followed at your home to cook food?

Based on the water content present in food items and the taste we want from the food, we have different methods of cooking food.

Methods of cooking food

- i) **Cooking by moist heat:** Process of cooking food by adding more or less water. Boiling, pressure cooking, simmering, steaming etc. are the methods of moist heat cooking.
- ii) **Cooking by dry heat:** Process of cooking food by adding hot air roasting, grilling, baking etc.
- iii) **Frying in oil or ghee:** Process of cooking food by adding oil or ghee. Deep frying, shallow frying, pan frying etc.
- iv) **Microwave cooking.**
- v) **Solar cooking.**

### 4.2.1 Cooking by moist heat

In moist heat cooking method, liquid or steam is used to cook the food. Flavoured liquids, such as milk, coconut milk or wine, can be used in this method.

**i) Boiling : How do you cook bengalgram at your home?**

Boiling is the method of cooking food in boiling water or other water-based liquids such as milk. Food items submerged in water. For example red gram, horse gram, eggs, rice, potato.

**Precautions to be taken while boiling the food item :**

- ◆ Wash the food items before boiling.
- ◆ First boil the water and then add food to the water.
- ◆ Do not take excess water for boiling the food add adequate amount of water to cook, otherwise nutrients will be lost from food ex: Rice.
- ◆ Cover the vessel with a fixed lid and make sure there should not be any gap in between vessel and lid.
- ◆ Avoid cooking food longer time, leads to loss of nutrients.

**Advantages :**

- ◆ Healthy method of cooking as no char formation.
- ◆ Food becomes soft and digestible.
- ◆ This method of cooking requires less oil or no oil so, it is healthy food.

**Disadvantages :**

- ◆ Most of the water-soluble vitamins such as vitamin C and B-group vitamins are lost.

**ii) Simmering :** Naturally vegetables and meat has water. Cook these food items at boiling temperature and later add less amount of water to the food. After few minutes of cooking gravy formed in the curry. We can eat that gravy. It will be tastier.

Have you ever observed at your home, while cooking ladiesfinger gravy and chicken gravy?

**Do you know?**

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. The leftout water after boiling rice, horsegram, beans, redgram etc contains many useful nutrients. So, that can not be discarded.

**Advantages :**

- ◆ In stewing, gravy and food item tastes good.
- ◆ The nutrients are also conserved better.

**Disadvantages :**

- ◆ Food takes longer time to cook.

**iii) Steaming :** Do you know how to cook idli or kudumulu?

It is a method of cooking food in steam generated vigorously from boiling water in a pan. The food to be steamed is placed in a container and is not in direct contact with the water or liquid. Idli, kudumulu are made by steaming. Vegetables can also be steamed.

**Advantages :**

- ◆ Steaming shortens the duration of cooking.
- ◆ Helps to conserve nutritive value, colour, flavour and palatability of food.

**iv) Pressure Cooking :** Have ever seen a pressure cooker? Which food items can be cooked in that?

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.

**Advantages :**

- ◆ Pressure cooking kills all bacteria and hence the food is safe and hygienic to eat. This also saves the fuel.
- ◆ Several food items can be cooked together in the pressure cooker by using separators.

**Disadvantages :**

- ◆ Food is cooked for very long, it loses its texture and may even burn.

Can we cook food without adding water?

Do you know how to make bread or cake?



## 4.2.2 Cooking by dry heat

In this method food items are cooked by dry heat which is usually hot air.

### i) Baking :

In this method, the food gets cooked in an oven or oven like appliance by dry heat. The temperature range maintained in an oven is 120 °C - 260 °C. The oven has to be heated slightly more than required temperature before placing the food in it. Foods prepared by baking are biscuits, pizzas, buns, bread and cakes.

#### Advantages :

- ◆ Food cooked using this method adds a variety to the texture in our plate.
- ◆ Foods become soft, light and fluffy. Eg. cakes, bread.

### ii) Roasting :

This method of cooking food by dry heat is roasting. While roasting, the food is kept directly on a hot tava or girdle or sand or fire and cooked. Eg. Groundnuts, tubers, brinjal, maize, chicken, fish etc.

#### Advantages :

- ◆ It improves the appearance, colour, flavour and texture of the food.
- ◆ Spices are easily powdered if they are first roasted.

#### Disadvantages :

- ◆ It is a relatively slow method of cooking. Roasted food sometimes become too dry, therefore, it may be served with a chutney or sauce.
- ◆ Roasting denatures proteins.

### 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, gas or electricity. Chicken, potato and fish etc. can be grilled.

### Do you know?

**Bamboo Chicken :** Do you know how to cook bamboo chicken? Take fresh chicken pieces add masala mix to it. Keep it aside for a while. Take one bamboo stick. Clean it properly and place a banana leaf inside bamboo stick. Keep chicken mix in bamboo stick. Cook on fire for half an hour. It would be cooked after half an hour. It will be tastier.

**Advantages :**

- ◆ Grilling gives nice flavour to the food.
- ◆ You can prepare a variety of dishes using this method.

**Disadvantages :**

- ◆ Constant attention is required to prevent charring.

### 4.2.3 Frying in oil / Ghee

**i) Frying :**

In this method, the food to be cooked is brought into contact with a large amount of hot fat. Frying is of two types namely deep frying and shallow frying. When food is totally immersed in hot oil, it is called deep frying. Samosa, chips, pakoda are examples of deep frying. In shallow frying, only a little oil is used, and the food is become brown on both the sides. Eg. Omelette, paratha.

**Advantages :**

- ◆ The calorific value of fried food is more, because oil is used as the cooking media.
- ◆ Frying lends a delicious flavour and attractive appearance to food.
- ◆ Taste and shelf life are improved

**Disadvantages :**

- ◆ Fried food especially deep-fried food is difficult to digest and has high calorific value.
- ◆ Excessive consumption of fried foods items is not good for health.
- ◆ Can be a risk factor to develop lifestyle diseases like acidity, ulcers, obesity etc.

**ii) Pan frying :**

Pan frying is probably the most used technique in home cooking. The food item is fried in little oil, till it become brownish. Eg: egg fry, potato fry, bread etc...

### 4.2.4 Microwave cooking

In this method food is cooked by microwave radiation. Water molecules in the food vibrate rapidly due to microwaves. The heat generated in this process cooks the food. Nearly all types of food items can be cooked in this method.

**Advantages :**

- ◆ Cooking time is reduced significantly as compared to other methods of cooking.

## 4.2.5 Solar cooking

A solar cooker is a device that changes the light energy of the sun to heat energy to cook food. There are three main types of solar cooker:



**Advantages :**

- ◆ A solar cooker does not produce smoke and it has low cost.
- ◆ Solar cooking can be successfully done in many parts of India.

**Disadvantages :**

- ◆ Solar cooker is used outdoors and works only when there is plenty of sunshine.
- ◆ Cannot be used in the absence of sunlight in rainy seasons, late evenings and nights.

To understand the importance of cooking food, do this activity.

Food item	Raw food taste	Taste after cooking	Texture after cooking	Shelf life when compared to raw	Smell	Method of cooking
Potato						
Cauliflower						
Rice						
Wheat flour						
Brinjal						
Egg						

**Check Your Progress...**

- 1) Which method of cooking is good to make samosa, vada and chips?
- 2) How do we cook food without using water?

### 4.3 Loss of nutrients during cooking

- Is there any change in nutritive value of food before and after cooking?

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

- 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 reduction in vitamin A content. You have already learnt that Vitamin A is a fat soluble vitamin. It gets dissolved in fat when food like spinach or fenugreek (methi) are deep fried. Temperature reaches upto 300°C during deep frying, which destroys vitamin A rapidly.
- Vitamin B Complex :** It is a group of eight water soluble vitamins. They are generally found together in most food items and share certain properties in common. Vitamin B gets dissolved in water when these food items 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 source of vitamin B complex in our diet and therefore care should be taken while washing, soaking and cooking these food items. Another reason for the loss of Vitamin B complex from our food is addition of cooking soda to the food during cooking.
- 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.
- Proteins :** Cooking results in softening of proteins in food items 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.

#### Do you know?

Milk is a good source of Riboflavin also called Vitamin B<sub>2</sub>. 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.

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 food like milk are cooked with sugar for a long time the sugar and protein react to form a brown coloured compound and the quality of protein deteriorates.

- v) **Oils and fats** : Oil and ghee are used for cooking and frying of food. During frying the oil or ghee is heated to a high temperature i.e. 300°C. Repeated use of oil for frying is quite a common practice but must be discarded because when ghee or oil are reheated for long period their quality becomes poor.
- vi) **Minerals** : Minerals like sodium and potassium dissolve in water. Minerals are lost when vegetables are washed after cutting.
- What are the precautions to be taken to prevent loss of nutrients from food while cooking?

### Do you know?

Repeated use of the same oil or ghee as a cooking medium should be avoided. It leads to cancer. You should keep changing the cooking oil. You may choose any of the oils like groundnut oil, vegetable oil, sunflower oil or soyabean oil.

## 4.4 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:

Tips to reduce the loss of nutrients:

- Use little water for boiling. Consume the liquid left in the pan after cooking vegetables.
- Don't peel vegetables before cooking them. Better, don't peel at all to maximize their fiber and nutrient density.
- Cut food after cooking - rather than before - cooking. When food is cooked whole, nutrients can be preserved.
- Cook vegetables only for few minutes.
- Don't use baking soda while cooking vegetables. Although it helps to maintain colour, but vitamin C will be lost in the alkaline environment produced by baking soda.



## 4.5 ENHANCING NUTRITIVE VALUE OF FOOD ITEMS

There are three methods by which one can enhance or increase the nutrients present in food.

- i) **Combination** : Combining of food items from different food groups is the easiest way of eating all nutrients. For example kitchdi, dosa and the food we are eating daily is a combination of rice, curd, chutney, dal, chips etc. Combination of these food items gives us all nutrients Rice - carbohydrates, dal - proteins, vegetables - vitamins and minerals, curd and chips - fat, minerals etc. are available in the food that we eat daily.
- ii) **Fermentation** : Fermentation is a process in which some micro-organisms are added to the food. They change nutrients already present in the food into simpler and better forms and also make other new nutrients.

Fermentation makes the dough rise and become almost double in quantity. During fermentation the microorganisms use up some of the nutrients present in the dough and change them into other better quality nutrients. They also make some new nutrients.

Curd, bread, and idli are examples of fermented food.

Observe the changes in fermentation process and tabulate the information.

Fermentation improves the digestibility of food. The microorganisms which cause fermentation break the proteins and carbohydrates into smaller parts, which are easier to digest. During fermentation of cereals and food like peas, beans etc. the minerals, calcium, phosphorus, and iron are changed into better quality ones. These are then easily absorbed by the body. Fermented food become spongy and soft and are liked by children and adults.

- iii) **Germination** : Seeds are soaked in water over night and kept in moist or wet cloth for 1 or 2 days. Sproutings arise from seeds. Grains like wheat, bajra, jawar, etc. can also be sprouted. These grains are then dried in shade and roasted lightly on a tawa.

They can be ground and used in many dishes. Pulses are also sprouted first and then steamed and consumed. The time and water required for soaking and sprouting is different for different grains. Normally 8-16 hours are needed for soaking and 12-24 hours for sprouting. The cloth in which the soaked seeds are kept should be moist all the time.

Increase the digestibility of food. Some carbohydrates and proteins are broken down into smaller and easily digestible forms. Increase the nutritive value of food with no additional cost. Vitamins and minerals increases in germinating seeds Vitamin B becomes almost double in quantity while vitamin C increases almost 10 times.

## Key Points

- Importance of cooking food - cooked food taste better than raw food and have good smell, texture, form, easily digestible and increases nutritive value.
- By cooking we can show diversity in items and shelf life also increased.
- Methods of cooking are- moist heat cooking, dry heat cooking, frying, microwave cooking, solar cooking.
- Nutrients like vitamin A, B complex, vitamin C, minerals, proteins, fats and oils etc. can be conserved by proper cooking method.
- To enhance the nutritive value of food we follow mixing fermentation and germination etc.

## Practice for learning outcomes

- 1) Explain different methods of cooking with examples.
- 2) Why do we cook food? Give reasons.
- 3) What suggestions will you give to stop the loss of nutrients from food while cooking?
- 4) How to enhance the nutritive value of food? Explain with examples.
- 5) Write the differences between baking-roasting, deep frying - shallow frying.
- 6) Match the food item with method of cooking
  - i. Pakodi ( ) a. Roasting
  - ii. Idli ( ) b. Boiling
  - iii. Dal ( ) c. Pressure cooking
  - iv. Egg ( ) d. Deep frying
  - v. Roti ( ) e. Steaming



# Food Preservation

Why should we preserve food materials? If we did not preserve food, a lot of us would starve. How would you get flour to make bread? How would you get veggies or fruit in winter? If you did not preserve them they were not being shipped all over the world. How do you think we get veggies and fruits to eat from other countries? By safe preservative methods, fruits and vegetables remain fresh for longer period. So, they can be transported to any part of the world.

And if we preserve food, we can eat anytime we want, rather than only when food is harvest and then we must eat it right away and starve the rest of the time. Humans have been preserving food for millions of years. We can get more profits by preserving the food items.

- What measures are taken at your home to prevent spoilage of food items?
- What are the methods used by you at your home to preserve food materials?
- Why do we preserve food items?

## Learning Outcomes

### The learner...

- ◆ Identifies the relationship between temperature and food preservation.
- ◆ Explains the importance of food preservation.
- ◆ Gives reasons for spoilage of food.
- ◆ Applies the knowledge of preservation techniques in daily life.
- ◆ Conducts activities to preserve food.
- ◆ Defines the terms food preservation, pasteurisation.
- ◆ Tabulates and analyses the information of food materials based on their shelf life.

## 5.1 Food spoilage and storage

- **How can we say that a food is spoiled?**

Simply speaking food spoilage means food is no longer fit for eating. When you keep pickle jar outside the refrigerator without lid for 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 get spoiled due to growth of mould and become unfit for our consumption. Likewise, if cooked dal or vegetable is left outside for some time, it develops a bad smell and bubbles due to fermentation. The dal and vegetables are thus spoiled and cannot be eaten. Food is said to be spoiled if it changes colour and gives a bad smell, shows signs of fermentation i.e., bubbles are seen in the food or there is growth of mould indicates spoilage.

- **What are the reasons for food spoilage?**

Food get spoiled mainly due to the growth of micro-organisms, enzymes, insects, worms and rats. Let us discuss these factors in detail.

**i) Presence of micro-organisms :**

- What do you observe when dosa and idli mix is kept in refrigerator for few days.

The top surface of dough 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.

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 sweet potato? The answer is tomato and that is the main reason why it get spoiled faster. When the food materials are kept for longer period at room temperature, they get spoiled. Have you ever observed what happens to spinach kept at room temperature, it turns yellow and stale. High sugar content and skinless fruits and vegetables get damaged faster.

**ii) Presence of enzymes :**

- Are enzymes harmful to food?

Enzymes are chemical substances found in all plants and animals. Enzymes help in ripening of fruits and vegetables. A raw green mango after 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 few more days? It will become soft, develop black spots and produce 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 normal, the fruit get damaged or spoiled. 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. Rats spoil the food by their hair and excreta. You have just learnt the three main causes of food spoilage. These are micro organisms, enzyme action and insects, worms and rats.

How food items are preserved at your home?

What is the need for food preservation?

### **Food storage :**

Food storage means keeping food in a special place until it is utilised 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. 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 fresh and protect it from being spoiled.

The quantity of food you buy depends on:

- i) your requirements
- ii) shelf life of food

How many days banana will be fresh? What is the shelf life of potatoes? What is the shelf life of red gram?

From the above three which food item get spoil faster?

### **Do you know?**

Plants produce hormone called ethylene which is responsible for ripening of fruits. Naturally this hormone ripens the fruits, but what is happening in the present day scenario is fruits are artificially ripened by using calcium carbide. By consuming them, people are suffering from digestive tract diseases like acidity, ulcers etc.



## 5.2 Classification of food items based on their shelf life

- Can you name three food items that get spoiled quickly and three which do not get spoiled for a long time?

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. You must have noticed the different food items take different period of time to get spoiled. Try to make a list and fill the following table.

**Long shelf life food :** It include whole grain cereals, pulses, nuts and oil seeds, sugar and jaggery. Stay for longer periods.

**Short shelf life food :** It include processed cereals and pulse products (e.g. maida, suji), eggs, potatoes, onions, biscuits and cakes. Stay for few days.

**Quickly deteriorating food :** It include green leafy vegetables, peas, beans, tomatoes, apple, bananas, bread, butter and cream. Very less shelf life.

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 packaged food you will find a label on it 'consume before' or 'best before' (a specified date). This is nothing but the shelf life of the food item and after that date the food may not look or taste the same as fresh and also start decomposing.

### Activity-1

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

S.No.	Food item	Manufactured date	Expiry date

#### Check Your Progress...

- 1) What are the reasons for food spoilage?
- 2) Give examples for long shelf life food.

Why should we boil milk?

Why should we keep some food items in fridge and some in air tight tins?

## 5.3 Food preservation

Keeping food items in air tight tins, fridge and in sun help in increasing the shelf life of food or preserve it. In other words to preservation helps to keep food safe, retain quality, and prevent decomposition or fermentation.

Food preservation can be defined as: A process by which food items are prevented from getting spoiled for a short or long period of time. The colour, taste and nutritive value of the food are also preserved as far as possible. Preservation implies prevention of decay or spoilage of food either by avoiding contamination or inhibiting enzymatic action 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

Why should we preserve food?

Well, here are some of the reasons.

#### i) Preservation protects excess production :

Can you name some products which are made with mangoes?

In which season we get mangoes?

The products that are made from mangoes are juice, murraba, squash, aam papad, ice cream pulp, chutney, pickle and raw mango powder. You may be able to add a few more to 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.

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 production will go waste. Preservation of food is done during the months when food is available in large quantity.

### Activity-2

Collect and tabulate the information about seasonal fruits and their preservation.

#### ii) Preservation adds variety to our meals :

Have you ever got tired of eating the same vegetables in a particular season? Is it not you may like 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 variety to our meals. Preserving food items when they are available, makes this possible.

**iii) 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. Apples are cultivated in the cold regions of the our country like Jammu and Himachal Pradesh but those fruits are transported through out the country.

**iv) 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.

### **5.3.2 Principles of food preservation**

We all know the reasons for food spoilage. By controlling those factors we can preserve food for longer time.

- 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 air tight tins) food is heated to high temperature to prevent growth of microorganisms 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 microorganisms. You have read earlier that micro-organisms need air and water to grow. But if these are removed, you can prevent the growth and action of micro-organisms and ensure that food does not get spoiled. Lowering temperature or freezing a food also helps in delaying the action of microorganisms and therefore helps preserving the food. You must have seen frozen food items. Frozen food can retain for a longer period than fresh food. This is because microorganisms cannot act at low temperatures. Lastly, certain chemicals like sodium benzoate and potassium metabisulphate 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 1. Providing a protective covering 2. Raising the temperature 3. Lowering the temperature 4. Adding chemicals.

- iii) **Stopping the action of enzymes or hormones** : Enzymes also cause food spoilage. They are naturally present in food. Take the example of fruits. Keep a raw banana for 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 spoiled. Enzyme action can be prevented by giving a mild heat treatment. Before canning or freezing, vegetables are dipped in hot water or exposed to steam for few minutes. This is known as blanching.. This extends shelf life of food.

### 5.3.3 Methods of preserving food at home

How do you preserve excessive fish at your home?

What are the methods used by you to preserve curd and pulses?

- i) **Exposing food to low temperature** : 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. A refrigerator helps to keep food at low temperature. Food can be preserved at low temperature by

Refrigeration- keeping food between 4°C to -4° C

Cold storage - keeping food between 1°C to 4°C

Freezing- keeping food below -18°C

The duration for which the food can be preserved by using low temperature varies with the type of food and the temperatures.

#### **Freezing of Peas :**

**Method Step 1** : Select about half a kilogram of fresh tender peas and deshell them.

**Step 2** : Take 1/2 litre water in a stainless steel pan in which the peas can be completely immersed. Add one teaspoon of salt boil it.

**Step 3** : Completely immerse the peas in the boiling solution for about two minutes.

**Step 4** : Drain the water and let the peas cool for 10-15 minutes.

**Step 5** : Pack the peas in polythene bag, 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 bengal gram and carrots can also be frozen.

### **Precautions while freezing fruits and vegetables**

- ◆ Packaging material, i.e., polythene bags should be strong enough to withstand expansion of food material on freezing.
- ◆ The food once taken out of the freezer and should be kept at room temperature.
- ◆ Small packets should be prepared, as food once thawed must be consumed.
- ◆ Remove air carefully and completely from the package before sealing.
- ◆ The freezer should not be opened frequently.

### **Do you know?**

#### **How to use frozen food items?**

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. Frozen vegetables can be stored up to six months in a freezer.

**ii) Exposing food to high temperature :** Microbes 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-those are the following.

**Pasteurization :** In this method food is heated to a high temperature and then quickly cooled. The micro-organisms are can not withstand the sudden change in temperature and are destroyed. However, some organisms still survive in this method.

**Sterilization :** High temperature is used in this method that destroys all the micro-organisms in the food. The food items are exposed to high temperature for longer period and in some cases under high 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) Usage of preservatives :** Any substance that is added to food that increases the shelf life is called a preservative. Salt, sugar or acid are substances which act as preservatives. Chips, biscuits, jam etc available in market are preserved in this method.

What are the preservatives present in pickles?

What are the preservatives used in jams and squash?

### Activity-3

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

S.No.	Food item	Preservative

#### A) Natural preservatives

How does salt act as a natural preservative?

- a) **Salt** : 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., it act as a preservative. If the proportion of salt in pickles is less, it can get spoiled after sometime. 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 spoiled. Salt is used as a preservative in pickle, chutney, sauce and canned food. Salt is applied to fish and dried which helps to preserve it.
- b) **Sugar** : Can you think of some preserved food 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 food items not only for taste but also as a preservative. The proportion of sugar has to be correct to protect such food items 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-organisms. 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.
- 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 few of them. They prevent the growth of microorganisms, thus preventing spoilage. When pickle is made at home, have you observed that oil is poured to cover the mango, lemon or other vegetables, pickles? The oil makes a protective covering and



has two advantages- Prevents contact of micro-organisms with the food, hence they cannot spoil the food. Prevents contact of air with food, hence the micro organisms cannot grow and spoil the food.

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

### **Method of making guava jam Ingredients :**

**Guava : 1 kg, Sugar: 750 gms, Citric Acid: 1 teaspoon, Water: 250 ml**

- Method: Step 1 :** Select fresh guava and wash them thoroughly. Remove the peel.
- Step 2 :** Cut them into small pieces.
- Step 3 :** Make it as smooth paste in the mixie. Take in a bowl add some water to it.
- Step 4 :** Sieve the guava juice carefully for removing seeds.
- Step 5 :** Take sugar in a bowl add and heat it to make sugar syrup.
- Step 6 :** Add filtered guava juice to sugar syrup and mix citric acid. Keep on stove for a while stir the mix continuously when it is on stove.
- Step 7 :** Pour hot jam into wide mouthed, sterilized bottles and make it cool.
- Step 8 :** Store in a cool place.

### **B) Usage of Chemical preservatives**

#### **Orange Squash preparation.**

**Orange juice: 1 litre, Sugar: 2 kgs. Water: 1 litre, Potassium Metabisulphate (KMS): ½ teaspoon, Orange essence: 1 teaspoon, Citric acid: 30 gms**

1) Select juicy oranges and extract the juice. 2) Take water, sugar and citric acid and boil the mixture till the sugar is completely dissolved. 3) Add orange essence to juice. 4) Dissolve the potassium metabisulphate in a little juice and mix it into the prepared squash. 5) Pour it in a sterilized bottle. Allow to cool. Seal it or close the bottle tightly. 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 :**

Do you know how pumpkin and cucumber crisps / fryums made?

Why does excess mutton is dried in sun during festivals?

The word dehydration means removing water or moisture from food. 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 food items is when the air is dry and there is strong sunshine.

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. 2) Wash the vegetables/fruits to be dehydrated. Cut, if required. Remove the stem, seeds and skin. Remove any decaying portions. 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). 4) Put vegetables in cold water containing salt and Potassium Metabisulphate (popularly known as KMS) for 5-10 minutes. This prevents blackening of food. Green leafy vegetables and other dark vegetables should not be kept in KMS solution as it will bleach the colour of vegetables. 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. 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 see how you can use this method to preserve curry leaves and potato.

- a) Dehydrating curry leaves :** 1. Wash the leaves properly 2. Remove the leaflets from compound leaves. 3. Put on a cloth in the sun, cover it with muslin cloth. 4. Keep it in sun till it is dried. 5. Cool to room temperature and store in air tight containers.
- b) Making potato chips :** 1. Wash and peel potatoes. Cut in to 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 metabisulphate (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.

### *Check Your Progress...*

- 1) What are the natural preservatives used at your home?
- 2) How dehydration is used to preserve food?

## **5.4 Useful tips for usage of preserved food**

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

- 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.
- While preserving pickles take care that a layer of oil is above the vegetables, so that food do not come in contact with the air.

- While using the preserved food items, take care to use clean spoons. Close the lid immediately after removing the required quantity.
- For food 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.

## 5.5 Hygiene in handling stored food

Store site should be clean. Food should be stored in air tight bags. We have to buy the food items in adequate amounts. If excess food is there we have to store it properly.

### Key Points

- Reasons for food spoilage - microbes, action of enzymes, insects etc.
- Principles of food preservation - killing of microbes, controlling the action of microbes, reducing the action of enzymes.
- Preservation methods used at home - freezing, reducing temperature, increasing temperature, using preservatives, dehydration etc.

### Practice for learning outcomes

- 1) Write the reasons for spoilage of food.
- 2) What we have to do to reduce the action of enzymes on food?
- 3) Why should we preserve food items? Illustrate with examples.
- 4) How will you preserve food items by reducing and increasing temperature?
- 5) Banana, potatoes, tomatoes, meat, fish are given to you. How do you do preserve them?
- 6) Which of the following is useful in handling hygiene while storing food. ( )
  - a) Storage site should be clean.
  - b) Use clean spoon to take out stored food item.
  - c) Add less oil to preserve pickles.
  - d) Bottles to be sterilized at 30-40° C in hot water before preserving sauces and jams.

A) a and b                  B) a, b and d                  C) a and d                  D) a, b, c, d
- 7) Identify the good storage method for fish. ( )
  - A) salting and drying
  - B) pasteurization
  - C) making curry
  - D) keeping in fridge
- 8) Match the following :
 

i. Natural preservative	( )	a. Potassium metabisulphate
ii. Chemical preservative	( )	b. Sun light
iii. Dehydration	( )	c. Killing microbes
iv. Increasing temperature	( )	d. Reducing the action of enzymes



# Fibre to Fabric

- **What did ancient people wear?**
- **Why do we wear clothes?**
- **Why do some clothes get spoiled after washing while others remain the same?**

We all know that food, clothing and shelter are the three basic needs of life. We eat food to survive and protect ourselves from diseases, we need a house to live in. We wear clothes for protection against climate, for modesty and beauty, and also to show status. The material that is used for clothing is called fabric. If you go to a shop to buy fabric for your dress, you would see a variety of fabrics there.

There are many stages in the making of garments let us know all these steps in this chapter.

## Learning Outcomes

### The learner....

- ◆ Explains that the basic unit of a fabric is fibre and their resources.
- ◆ Explains the processing method wool and silk.
- ◆ Draws the labelled diagram of silk moth life cycle.
- ◆ Identifies fibres and fabrics on the basis of visual examination and non-technical tests;
- ◆ Elaborates the process of yarn making and fabric making;
- ◆ Differentiates fabrics made from different fibres;
- ◆ Classifies fibres and fabric based on their characteristics.
- ◆ Applies learning of scientific concepts about fabrics in day to day life.

## 6.1 Different types of Fibres

- What are the sources of fibres?
- What material is used in fabrics?

There are different sources from which we can obtain fibres and therefore, we classify them accordingly.

### 6.1.1 Classification based to the sources of fibres

- Fibres from Natural Sources :** All the fibres obtained from 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.
- Man-made fibres :** The fibres which are made by using chemicals in the factories are known as man-made fibres and these are of two types:
  - Regenerated fibres** - These fibres are made from extremely small cotton fibres or any other fibre source such as wood pulp, etc. Chemicals are used to dissolve them and the solution is then converted into solid fibres. Examples : Rayon and soya bean fibres.
  - Synthetic fibres** - These are made of various petrochemical products. Ex: Nylon, acrylic and polyester.

Natural fibres which are eco-friendly in nature. Sometimes synthetic fibres may cause allergies if worn tightly to the skin.

**Table : Natural and synthetic fibres**

Types 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, camal etc.
	silk	silk worm
<b>MAN-MADE-FIBRES / SYNTHETIC / ARTIFICIAL FIBRES</b>		
Regenerated	Rayon (viscose, acetate)	cotton lint or wood pulp+chemicals
Synthetic	nylon	chemicals
	polyester	chemicals
	acrylic	chemicals



- What are the differences between natural and synthetic fibres?

Some of the major differences between natural and synthetic fibres are given below :

NATURAL FIBRES	SYNTHETIC FIBRES
Comes from natural resources	Man-made fibres
Natural colours	Chemical colours are added as per requirement
During spinning process spinneret is not necessary	During spinning process spinneret is necessary for the production of fibres
Chances of containing dust or impurities	No chance of any dust or impurities
Less durable than synthetic fabrics	More durable than natural fabrics

### 6.1.2 Classification based on the length of fibres:

- Filament fibres :** The long fibres are known as filament fibres and are measured in yards / meters, e.g., silk and all man-made fibres.
- Staple fibres :** The short length fibres are called staple fibres and are measured in inches or centimeters, e.g., cotton, wool and linen.

S.No.	Length of fibre	Class	Appearance	Unit of measurement
1	long	filament fibres		yards / meters
2	short	staple fibres		inches/ centimeters

*Check your progress...*

- 1) What are the different types of synthetic fibres?
- 2) Name the fibres which are obtained from plants and animals.
- 3) Give examples for filament fibres and staple fibres.

### 6.2 Characteristics of different fibres

- **Why are some fabrics warm, some are soft and others are rough?**
- 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 of it are used as summer wear. Fabrics made from cotton are strong, durable and easy to wash and are used to make towels, bed sheets, pillow covers, etc., that require frequent washing.



- 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. Linen fabric is cool, when worn. It absorbs water. Hence is suitable for summer wear.
- iii) **Jute** : Like flax jute it is also a bast fibre. Jute production is maximum in India. The fibres are short and lustrous but weaker than flax. It is used for making gunny bags and cords.
- iv) **Wool** : It is obtained from the fleece of domestic goats, sheep, rabbits, etc. The colour of wool fibres may vary from half-white to light cream. Fabrics made from wool are soft, smooth, absorbent. They do not allow the body heat to go out and act as insulators. This is why the fabric made up of these fibres is used as winter wear. Wool is a weak fibre and can be easily washed by common soaps, powders.
- 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 making expensive wear.
- vi) **Rayon** : It is a man-made filament fibre which is lustrous and smooth, but is weak in nature. Because of its close resemblance to silk, rayon is also called 'artificial silk' or 'art silk.' It is cool so 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 the flame. Synthetics do not wrinkle and can be made dull or shiny. They have good strength and are easy to wash and dry quickly. Some more characters of different fibres can be observed in the following table:

### Characteristics of different fibres

Fibres	Apperance	Touch	Feel	Care required
Cotton	dull in apperance but lustrous when starched	feels smooth and soft to touch	gives a cool feeling	wrinkles easily if it is starched
Linen	low to medium shining	smooth and soft texture	gives a warm feeling	wrinkles easily
Jute	dull finish	rough, hairy out growths	gives a warm and rough feeling	does not wrinkle easily
Wool	medium to low luster; poor quality	soft, smooth and absorbent; also bulky to look	warm to touch	does not wrinkle easily

Fibres	Apperarance	Touch	Feel	Care required
Silk	delicate and lustrous	smooth, soft and light	warm to touch	does not wrinkle easily
Rayon	lustrous	soft and shiny but heavier than silk	gives cool feeling	do not wrinkle easily
Synthetic fibres	low to medium shining have acrylic fibres look	heat sensitive soften and melt on application of heat	most of the fabrics feel warm	able to withstand friction and do not wrinkle hense easy to care

### *Check your progress...*

- 1) Explain the characteristics of natural fibres.
- 2) Mention the characteristics features of synthetic fibres.
- 3) Name the fibres which are used in making wrinkle free fabrics.

## 6.3 Process of yarn making

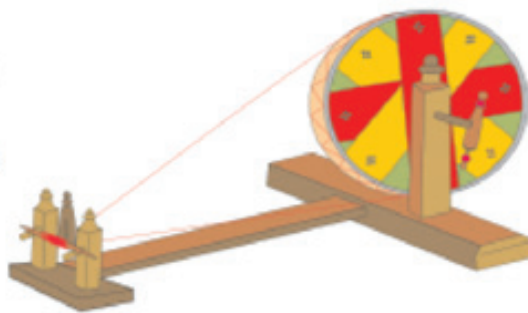
### (a) Spinning of yarns :

#### ◆ Do you know how 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.

#### ◆ Mahatma Gandhi and his charkha (the spinning wheel)

Mahatma Gandhi, used to spin cotton 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. A charkha is for hand spinning. The yarn spun on a charkha 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 like cotton, wool, hemp and silk are spun on charkha in the villages in India.

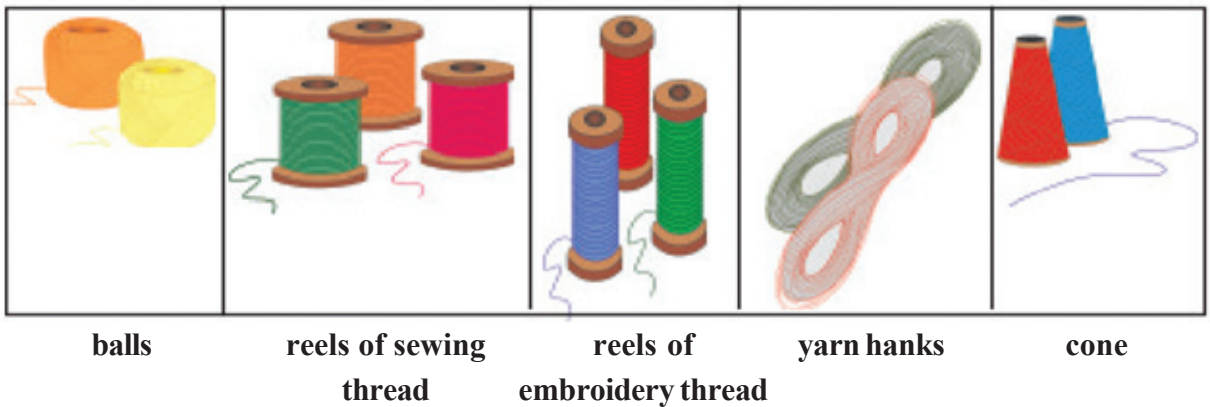


A traditional spinning wheel (*charkha*)

**(b) Spinning by machine :**

Both, the fibres as well as filaments are spun into yarns that are then used for different 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, they 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 a step used for making fine quality yarn. Carded slivers are separated as long and short fibres with the help of series of combs. Cleaning, carding and combing steps are not there 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 piled into several strands:
- v) Winding :** The yarn is wound into various packages according to the weight or length of the yarn and its 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.



**Packaging of yarn in balls, reels, hank and cone**

***Check your progress...***

- 1) Write various steps followed in making/ processing yarn.

## 6.4 Methods of manufacturing fabrics

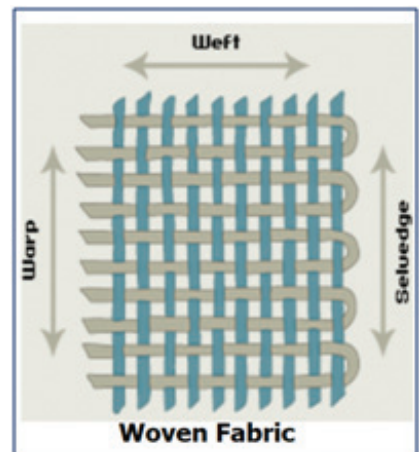
### • How fabric is obtained from yarn?

Fabric is a pliable, strong sheet made from fibres or yarns. You must have heard names such as poplin, khaddar, 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.

### 6.4.1 Weaving

Weaving is interlacing of two sets of yarns -warp and weft at 90° angles to each other. vertical 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.

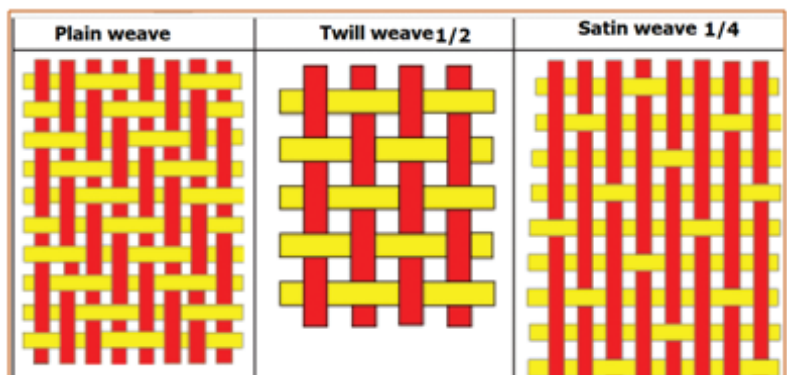


### Merits of weaving :

- Weaving gives a firm fabric.
- Woven fabrics do not stretch and are thus easy to handle.
- Woven fabrics are easy to print and embroider.
- For fabric construction different weaving methods are used.

Most of the fabrics are produced by basic weaving, which are of three types- plain, twill and satin weave.

- a) **Plain weave** - Plain weave is also known as homespun, tabby or taffeta weave. It is the easy to weave where



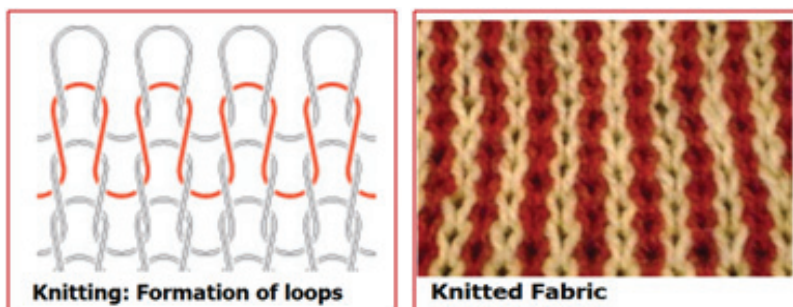
one weft yarn alternatively moves over and under another warp yarn. Maximum production of fabric is done in plain weave. It is inexpensive weave, most suitable for

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 warp yarn under. 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. It differs from Twill weave as it has long yarns floating on the surface. The design is not visible, 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.

### 6.4.2 Knitting

Knitting is the process of formation of loops of yarns and drawing of new loops through those formed previously (inter looping). 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 used to make casual wear, party wear, sportswear, undergarments (banians), as well as household articles such as bed sheets, bed covers, blankets, etc.



Knitted fabrics are well known for their fit, comfort, stretchability, warmth, absorbency, and wrinkle resistance.

Handlooms are the second largest employer of the rural population in India, next 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 also 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.

### *Check your progress...*

- 1) What is weaving?
- 2) What are the three basic weaves?
- 3) Differentiate between weft knitting and warp knitting.

## 6.5 Production of silk fabric

- How silk fabric is made?
- What is the speciality of silk fabric?
- Why is silk fabric so expensive? How are silk worms used to make silk?

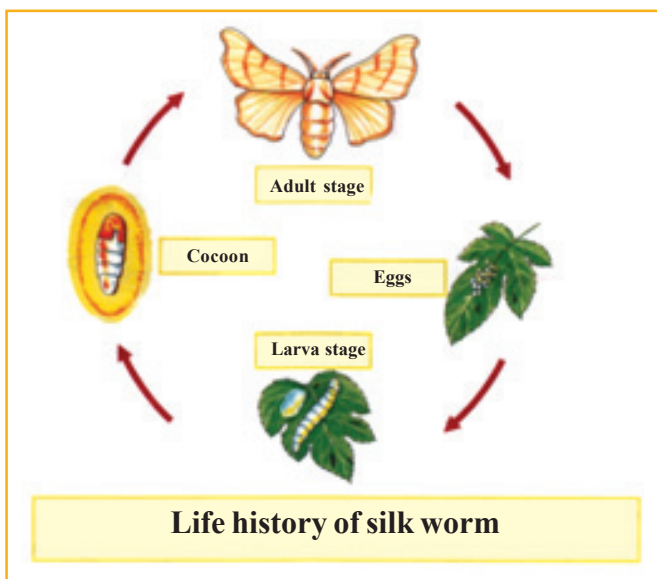
Making of silk or silk fabrics is a very interesting story. This involves various persons and practices. The process of silk production is known as **Sericulture**. Extracting raw silk starts by cultivating the silkworms on mulberry leaves. Silk moth is like butterfly. The scientific name of these moths is 'Bombyx mori'. Silk moth feeds on mulberry leaves. Once the worms start pupating in their cocoons, they are dissolved in boiling water in order to get individual long fibres to be extracted and fed into the spinning reel.

The life cycle of silkworm consists of four stages:-

- i) Egg :** The female moth lays eggs during summer and remains in the dormant state until the spring. This allows the eggs to hatch; the eggshell provides a protective covering for the embryonic development.
- ii) Larval stage :** It is growing stage and it is commonly called a silkworm. The silkworms feed on tender mulberry leaves. The larval stage lasts for about 27 days.
- iii) Pupa stage :** At this stage, it spins fibres as a protective cocoon around itself. The cocoon serves as protection for the pupa which is in shades of white, cream and yellow. The final moult takes place inside the cocoon and the larva develops into the brown structure called the pupa. The pupa takes about 2-3 weeks to metamorphose into an adult moth.
- iv) Cocoon :** In this stage, larva spins a silk thread to protect itself from its predators. To get silk fibre cocoons are boiled. Caterpillar of silkworm spins fiber which is mainly made up of two types of protein i.e. sericin and fibroin. It is very strong. The silk fibre is carefully collected from the cocoon and nearly 3 to 8 of such threads are wound together to make yarn from it which is reeled. This yarn is cleaned, bleached and coloured. The yarn is ready to be woven into a variety of designed fabrics, on looms.



v) **Imago stage** : It is the reproductive stage where females lay eggs. Moths can fly and lack functional mouthparts thus, it cannot take in food. They die, when cocoons are boiled. If they come out by breaking cocoon the silk fibres breaks. Hence cocoons are boiled to kill them. Pochampally pattu and Dharmavaram are famous types produced by our state. Pochampally pattu is also called 'tie and die or Jamdani'. Dharmavaram is famous for its wide border and rich buta or dots. Banaras, Kanchipuram, Dharmavaram, Narayanpet, Kothakota, Pochampally are all types of silk fabrics. They get their names from the places where they are made. You may have also heard the names of tasar silk, mooga silk, kosa silk, eri silk etc. These all are different varieties of silk. Silk is used to make other products as well like satin and crepe. We have both handlooms and power looms to weave.



**Discovery of silk** : The exact time of discovery of silk is perhaps unknown. According to an old Chinese legend, the empress Si-lung-Chi was asked by the emperor Huang-ti to find the cause of the damaged leaves of mulberry trees growing in their garden. The empress found white worms eating up mulberry leaves. She also noticed that they were spinning shiny cocoons around them. Accidentally a cocoon dropped into her cup of tea and a tangle of delicate threads separated from the cocoon. Silk industry began in China and was kept a closely guarded secret for hundreds of years. Later on, traders and travellers introduced silk to other countries. The route they travelled is still called the 'silk route'.

*Check your progress...*

- 1) Write the stages in the life history of the silk moth.
- 2) Write the process of separating silk thread from cocoon.

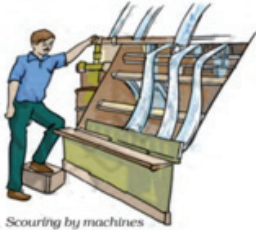
## 6.6 Production of wool fabric



Shearing a sheep



Scouring in tanks



Scouring by machines



Rolling into yarn

- Which animals give wool?
- How is wool made?

Most wool comes from sheep, goats, camels, llamas, and special rabbits. Wool can be spun into yarn. The yarn is used to weave fabric. Processing fibres into wool involves the following steps:

**Step I : Shearing :** The wool (hair / fleece) of the sheep along with a thin layer of skin is collected from its body.

**Step II : Scouring :** The sheared skin with hair is thoroughly washed in tanks to remove grease, dust and dirt. Now-a-days scouring is done by machines.

**Step III : Sorting :** After scouring, sorting is done. In this step the hair of different textures are separated or sorted.

**Step IV : Bleaching :** Bleaching, a process of whitening fabric by removal of natural colour, such as the tan of linen. It is usually carried out by means of chemicals

**Step V : Dyeing (Colouring) :** The fibres can be dyed with various colours, as the natural fleece of sheep and goats is black, brown or white.

**Step VI : Combing / Carding :** The fibres are straightened, combed

**Step VII : Spinning :** Straightened, combed fibres are rolled into yarn

**Step VIII : Weaving / Knitting :** Fabric are made from woollen yarn by two different processes called knitting and weaving.

### *Check your progress...*

- 1) Write about the different steps involved in the production of wool.
- 2) What are the sources of wool?

### **Key Points**

- Basic unit of fabric is fibre.
- Based on the sources of fibres they are of two (2) types.
- The fibres are obtained from plants and animals are natural fibres. Ex: Cotton, Wool, Linen, Silk, Jute.

- The fibres are obtained from chemicals are called artificial fibres. They are man-made fibres. Ex: Rayon, Soyabean fibre, Nylon, Polyester.
- Weaving is if different types : Plain weave, Twill weave, Satin weave.
- Silk is produced from silkmoth. Rearing of silk moth for silk thread is called sericulture (silk industry).
- Wool is produced from sheep, goat, camel, rabbit.

### Practice for learning outcomes

- 1) What is the basic unit of fabric?
- 2) Name the animal fibres.
- 3) What are synthetic fibres. Give examples?
- 4) What are the different methods of weaving?
- 5) Write the steps involved in silk production.
- 6) Describe the process of making wool.
- 7) Draw the labelled diagram showing the life cycle of silk-moth and explain it.
- 8) Write the differences between natural and synthetic fibers.
- 9) Identify the plant fibre from the following [     ]  
 A. Rayon                      B. Linen                      C. Wool                      D. Silk
10. Identify the fabric which is well known for its stretchability, warmth and wrinkle resistance from the following [     ]  
 A. Rayon                      B. Linen                      C. Wool                      D. Silk
- 11 . Identify the correct sequence of wool processing steps from the following [     ]  
 A. Shearing → Sorting → Bleaching → Dyeing → Scouring  
 B. Sorting → Shearing → Dyeing → Bleaching → Scouring  
 C. Shearing → Scouring → Sorting → Bleaching → Dyeing  
 D. Shearing → Sorting → Scouring → Dyeing → Bleaching
12. Identify the fibre which is a bad conductor of heat from the following [     ]  
 A. Rayon                      B. Linen                      C. Wool                      D. Silk



# Finishes

Manoj and some of his friends had joined a hobby course to learn fabric painting. While observing 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 finishing touch which needed to be washed before using fabric painting colours.

- How will be different colours are given to fabrics?
- What is meant by finishing touch in fabric industry?
- Do colours appear differently on different types of materials?

In this lesson we will learn how dyeing, printing, mercerization etc. processes influence the functions of fabric.

## Learning Outcomes

### The learner...

- ◆ Explains the uses of finishing touch and their processing.
- ◆ Explains different methods of finishing touch and application of dyes.
- ◆ Identifies different types of stiffening agents;
- ◆ Differentiates between temporary semidurable, durable and permanent final touch.
- ◆ Classifies different types of dyes used for textile finishing touch.
- ◆ Applies knowledge of the processing of finishing touch to fabrics in daily life.

## 7.1 MEANING OF FINISHING TOUCHES

The word "textile" means the complete study of fibres, yarns and fabric. Certain methods are used to improve the look and quality of textile goods. These methods are called finishing touches. A finishing touch 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 final use.

- What processes will be done during finishing touch?

A series of treatments are done in mills to finish textile goods. For example, a fabric is washed, bleached, dyed or printed, starched and ironed before it is sent to the market.

- What are the advantages of finishing touches?

Let us see in detail the necessity of finishing touch.

## 7.2 NECESSITY OF APPLYING FINISHES

When a fabric is given a finish, then only it is known as a finished textile. But it is not a compulsory that all the textile-products are finished before use. When no finish is applied on the textiles, they 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.

The finishing touch to costumes

- Improve the appearance of fabric and enhance its looks;
- Production of variety of 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 specific use.

## 7.3 BASIC FINISHES AND THEIR TYPES

### 7.3.1 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, they have 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.

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 a bucket of water.

What do you observe?

The old one will sink faster because it is more absorbent as it has no finishers 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.

### 7.3.2 Bleaching

- What is meant by bleaching of fabric?
- In which situations bleaching process is used in our daily life?
- Is bleaching will be done to the fabric? Why?

Generally lemon, milk, curd and facial bleach is used 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. 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 hypochloride for cotton, 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.

### 7.3.3 Stiffening

- What is meant by stiffening?
- Why cotton cloths are dipping in starch solution?
- What is the major substance used in 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 is removed with the first wash. Therefore, starched fabric should be examined properly before purchasing.

- How can a starched or stiffened fabric/cloth be tested?



Let us do an activity to test a starched or stiffened fabric

## Activity-2

- Take the starched cotton fabric. Try to look through it. You will notice that light cannot 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 cloth.

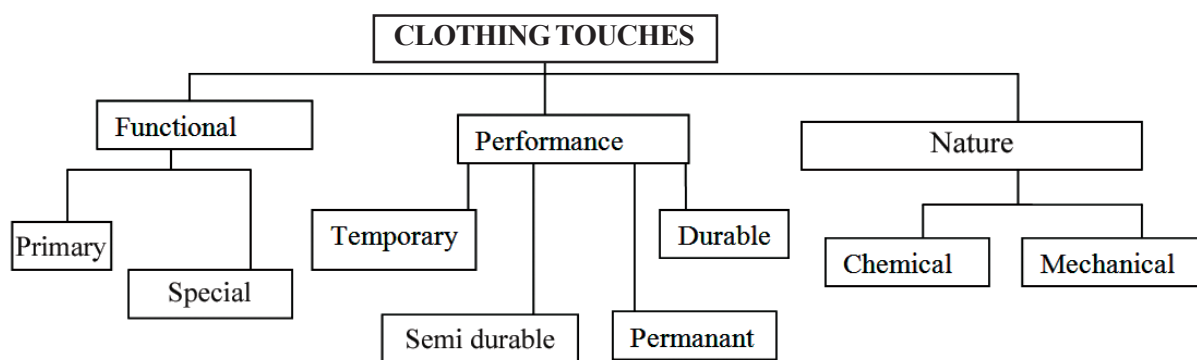
### 7.3.4 Calendaring

- Why do you iron your clothes?

To remove wrinkles and make them look better. This is the simplest and the common finish used to improve the look of any gray or finished fabric. The process by which a fabric is passed through a series of smooth hot rollers to remove wrinkles and to make it smooth is called calendaring or industrial ironing. It makes the fabric smooth and lustrous, thereby improving its appearance.

## 7.4 CLASSIFICATION OF FINISHING TOUCHES

Finishing touches can be classified in several ways depending upon their functions, performance and nature.



**7.4.1 On the basis of function :** The finishing touches may be basic or functional

- Primary or common finishes** are applied to almost all the fabrics, with an aim to improve their appearance, feel and structure. 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 finishing touches as they enhance the aesthetic appearance of fabrics.

- ii) **Special or specialfinishing touches** are applied to improve the performance of a fabric for some specific purpose. For example-
- ◆ **fire proof finish** prevents the burning of fabrics used by fire brigade personnel,
  - ◆ **water proof finish** makes fabrics water repellent for making umbrellas and raincoats,
  - ◆ **bullet proof finish** on fabric saves the people from bullets and is generally used by defence and police personnel for their safety, and
  - ◆ **Grease-resistant finish** makes cotton / wool fabric greasy resistant.

**7.4.2 On the basis of degree of performance :** On the basis of performance, finishing touches are temporary, semi durable, durable and permanent.

- i) **Temporary finishing touches** 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 bluing of white fabrics.
- ii) **Semi durable finishing touches** stay on the fabric surface for several washings, e.g. bleaching and certain dyes used on cotton fabrics.
- iii) **Durable finishing touches** last throughout the life of the fabric or the garment but may lose its effectiveness after many washes, e.g. permanent pleats, wrinkle resistant, etc.
- iv) **Permanent finishfinishing touches** are is usually given by a chemical treatment. It changes the fibre structure and remains as long as on the fabric lasts, for the entire life of the fabric, e.g. water proofing, fire proofing, etc.

**7.4.3 Chemical and mechanical finishing touches / Wet and dry finishing touches :** On the basis of processes involved in application of finish, there are two types - chemical (wet) and mechanical (dry).

- i) **Chemical finishing touches :** These are also known as wet finishing touches. In the, chemical treatment is given to fabric, either to change its appearance or basic properties. These finishes are usually durable and permanent. Examples are: fire proof, grease resistance, etc.
- ii) **Mechanical finishing touches :** These are also known as dry finishing touches. Here the process is done by the application of moisture, pressure and heat or a mechanical device to finish a fabric. Beating, brushing, calendaring, filling, etc. are some of them included in this group. These are either temporary or semi durable of do not last long.

### *Check your progress...*

- 1) How many types of finishing touches are there? What are they?
- 2) What is meant by stiffening?
- 3) What is the advantage of bleaching?
- 4) Write the differences between chemical and mechanical finishing touches.

## 7.5 SPECIAL FINISHING TOUCHES

They are used in fabric textiles to enable it to use for special purposes. Let us learn some important special finishing touches.

**i) 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 by fabrics. Now-a-days this has become a routine process for all cottons. Even sewing threads which are used for stitching are mercerized.

- ◆ When you wash a new cotton shirt or dress, what causes them to become a little shorter?

**ii) Shrinkage control :** 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 woolens. It is all due to shrinkage. Good quality cottons, linens and wools are pre-shrunk before marketing them. This pre-shrinking is called sanforization. Fabrics that are treated for pre-shrinking are labeled as 'sanforized' or 'anti-shrink' or 'shrinkproof'.

Let us do an activity that clearly explains how shrinkage occurs.

### Activity-3

Take a cotton fabric of 10// x10//. 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 indicates that the fabric has shrunk, if not it is done sanforized.

- What else does one need to check about the quality before buying the material?
- iii) Water proofing :** 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 cotton fabric is treated with a mild acid that partially eats away the fabrics, resulting in a transparent and stiff fabric called organdy.

### Check your progress...

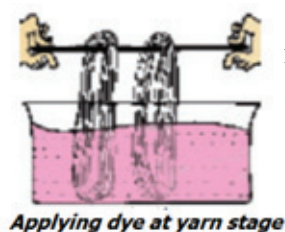
- 1) Name the processes that are used to clean the fabric.
- 2) Give examples of fabrics that shrink after first wash.
- 3) Which finish is used to give the fabric stiffness even after washing?

## 7.6 DYEING - NATURAL AND CHEMICAL DYES

- What is meant by dye in fabric textiles?
- How many colours of dresses you wear?
- How does clothes are available in different colours?
- Can you imagine wearing a plain white dress or one having same print every day?

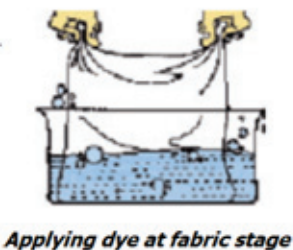
No, never, even the thought is unwelcome. It is very difficult to think of fabric without variation in colours, prints or designs. In the market, you will find fabric in all tints and shades of colours, small and big prints, woven in colourful designs. Dyeing and printing improve appearance of fabric and add diversity to our dresses through colours and designs. We usually distinguish one fabric from another by its colour, print and texture.

### Types of dyes used for textiles finishing :

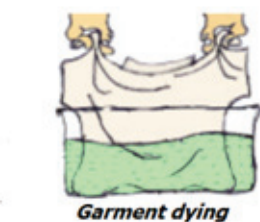


Dyes are used for dyeing and printing of textiles. Dyes are two major categories - natural and synthetic dyes.

- Natural dyes** : They were the first dyes known to mankind. They are obtained from natural sources like 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 (neeli). While tyrian purple and lac dyes are obtained from animal sources. Khaki dye comes from mineral source.



- Synthetic dyes** : These dyes are prepared artificially with the help of different chemicals. 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 better colour range.



## 7.7 PROCEDURE OF APPLYING VARIOUS FINISHING TOUCHES

Let us learn in detail how the colouring is given to the fabric.

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 the method is more popular for dyeing man-made fibres. It gives uniform dyeing. There is a lot of wastage of coloured fibres during subsequent processing.
- ii) **Yarn stage** : Colour can be applied or rendered 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 strong 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.
- 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. But the colour may not be uniform, especially around pleats and stitches.

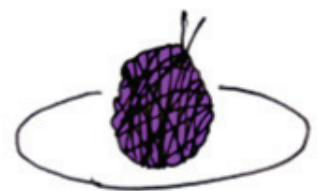
### Decorative dyeing :

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 this technique, 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 crumble 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.



Marbling

b) **Binding** : The fabrics like dupatta, table cloth or bed sheets will be taken and tied with a thread at intervals and dye it.



Binding

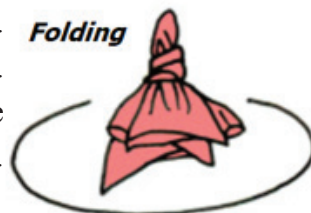
c) **Knotting** : Put knots on the fabrics wherever desired and dye it.



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.

Folding



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.



Tritik

- Have you ever observed bandhini cloth?

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 the design. These areas do not get coloured while dyeing, giving a patterned effect. The wax is later removed.



Batik

### Check your progress...

- 1) Explain different types of dyeing procedures.
- 2) What is the difference between tie and die and batik?
- 3) Give examples of natural dyes and synthetic dyes.

## Key Points

- Certain treatments are applied to improve the look and quality of textile goods. These treatments are called finishing touches. They will make the fabric according to its use.
- A series of treatments are given in mills to finish textile goods. For example : a fabric is washed, bleached, dyed or printed, starched and ironed before it is sent to the market.



- Bleaching is a chemical treatment given to fibres, yarns or fabric to remove paleness or colour and make them white. Man-made fibres do not need bleaching.
- The process of industrial ironing of a fabric is called calendaring. In this process a fabric is passed through a series of smooth hot rollers to remove wrinkles and to make it smooth.
- Cotton is treated with sodium hydroxide to make it strong, lustrous and absorbent. This process is called mercerization.
- Batik is also a method of resist dyeing. Here, wax is used as a resist material to prevent the dye from colouring certain areas.

### Practice for learning outcomes

- 1) What is a textile finish? Why is it necessary to apply on fabric?
- 2) Explain the methods of dyeing textiles.
- 3) Explain the significance of 'mercerization'.
- 4) What do you understand from the label "dyed shirt"?
- 5) Describe batik and block printing.
- 6) Describe any two primary finishing touches.
- 7) Write the differences between natural and synthetic dyes.
- 8) Which of the following is used to stiffen the cotton garments [     ]  
 A. Whitening agent     B. Starch     C. Gum     D. Colour
- 9) Which of the following is not an eco-friendly dye [     ]  
 A. Turmeric     B. Indigo     C. Henna     D. Azo
- 10) Which of the following is a durable finishing [     ]  
 A. Bluing     B. Starching  
 C. Bleaching     D. Wrinkle resistant
- 11) Match the following :
 

i. Marbling	(     )	a.	Put knots on the fabrics wherever desired and dye it.
ii. Knotting	(     )	b.	Make a design of choice on the fabric with running stitch, pull the thread tightly and dye it.
iii. Tritic	(     )	c.	Fabric is tied with threads at intervals and dye it.
iv. Binding	(     )	d.	The fabric is made into a ball.

# Care and Maintenance of Fabrics



A group of students were chatting during lunch break. Charles complimented Joseph for his favourite sparkling white shirt that had brought 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 sweater after the first wash. Then Kabir told them that he has acquired knowledge regarding caring of different types of fabrics in the 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 for different types of clothes. He advised that a little care can keep their favourite dress as good as new.

- What methods do you follow to take care and maintenance of your clothes?
- What is the advantage of taking care of your clothes?
- Do you know that clothes speak about the wearer's personality?

It is good to select clothes carefully. But even more important is wash them regularly for a well-groomed appearance. Let us learn how to take care of fabrics.

## Learning Outcomes

### The learner...

- ◆ Explains the need of care and maintenance of fabrics.
- ◆ Differentiates between washing and dry cleaning.
- ◆ Gives the reasons for starching clothes.
- ◆ Classifies different methods of washing.
- ◆ Identifies different types of soaps and detergents that are used to wash clothes in daily life.
- ◆ Applies the concepts of starching and ironing of clothes in day to day life.

## 8.1 LAUNDERING

### 8.1.1 IMPORTANCE OF LAUNDRY

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

- i) 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.
- 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) Preserve the garments, e.g. when the winter season arrives you preserve 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
Removing dirt from clothes using soap/ detergent and water.	Removing grease and stains using absorbents and solvents
The clothes which does not loose colour easily are washed	Leather, fur, selected silks and woolens, zari and other costly fabrics are cleaned.

## 8.2 STEPS OF LAUNDERING

Laundrying of clothes involves the following steps:

### 8.2.1 Soaking



Soaking of fabric in water removes / separates the non-greasy dust particles because of up and down movement of water molecules. Fabrics which become weak during wetting must not be soaked for long. Do not soak too many clothes in one bucket. Fabrics must not be soaked for longer than half an hour otherwise dust will resettle on the fabrics.

### 8.2.2 Washing

As said earlier, soaked clothes must be washed soon. The process of washing involves removal of dirt that has been separated from fabrics by soaking. There are many ways to do this and the choice depends on the fabric being washed. Let us now learn about these methods and their suitability to various types of fabrics.

## 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 some soiled areas in the garment like cuffs, collar and bottom of the lower garments, handkerchief and lace.

◆ **Scrubbing brush** : While cleaning kitchen dusters which are much soiled. Use a brush to remove dirt, grease and stains. Remember to place the fabric on a flat hard surface before scrubbing. Have you noticed 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 with stick** : While washing large clothes like bed sheets and towels use a wooden 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 gently and again dip in the soap. In between, rub the dirty areas gently between two hands. Repeat it till the clothes become clean.



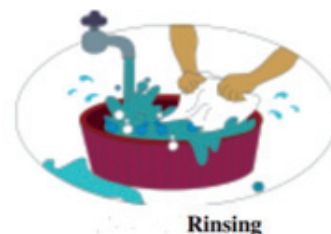
iii) **Washing in machines** : 'Washing machine' a labour saving device and provides all the friction required for cleaning the clothes. The washing time varies with the type of fabrics and amount of soiling. For example, wool fabrics take less time for cleaning than cottons. Washing machines available 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 whirl the clothes after washing to the extent that these are almost dry. This is useful while washing large and heavy clothes like bedcovers, curtains, etc. One should be careful while loading clothes for washing in a machine as the colour of some fabrics may spoil the other clothes in the machine. So, read the instructions carefully before using the washing machine.

### 8.2.3 Rinsing

Washed fabrics must be rinsed at least thrice or till they lose the soap water. If not rinsed well the contents of leftover soap / detergent would harm the fabric. A finishing agent helps to brighten and/or stiffen the fabric and give fresh look. starch and / or blue are finishing agents for white cottons. For silks, a different starch is used. It is called 'gum arabica'. Similarly, there are 'blues' and brightening agents to brighten the white clothes.



### 8.2.4 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 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 in this way and 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.

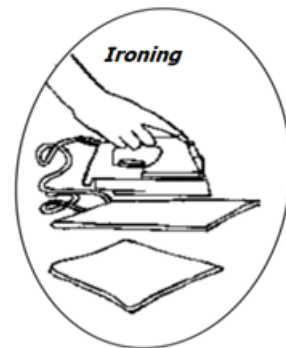
#### *Check Your Progress...*

- 1) Mention any two importances of laundry.
- 2) Write the difference between washing and drycleaning.
- 3) What are the precautions to be taken during scrubbing with brush.

## 8.3 DIFFERENT METHODS OF STORING GARMENTS

### 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 (nonstick coated surface or steam irons). We have to use them according to the instructions given along in the package. We can use coal in iron boxes.



Prepare a table for ironing. 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.

- Take some water in hand and spray on cotton and linen clothes to get good results.
- Sleeves, collars, laces, etc., should be ironed first.
- Iron laces, buttons, hooks, embroidered and embossed clothes from the back 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. 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

## 8.4 METHODS OF WASHING AND IRONING

### LAUNDERING OF SPECIFIC FABRICS

You have learnt the basics of laundering clothes.

Before washing, it is sorting out the clothes. 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 cotton clothes like sarees, blouses, salwar suits and dupattas.
- iii) Synthetics clothes consisting of shirts, sarees, blouses, dupatta and socks, etc.



- iv) Silk sarees, blouses, shirts, etc.
- v) Woolen sweaters, mufflers and shawls.

Separate more dirty clothes from less dirty ones, 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.

### 7.4.1 Laundering of cottons

- i) **Soaking :** How and why will you soak your cotton clothes? To separate the dirt settled or stuck to the fabric white cottons are soaked. They are soaked preferably in warm or hot water for half an hour depending on how dirty they are. Soak more dirty clothes separately. Yes, for two reasons, one because these are soaked for longer duration and in hot water and soap/detergent. Secondly, the separated dirt from more dirty clothes will settle on the less dirty ones and make them dirtier. It is much easier to clean soaked fabrics.
- 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 kneading and squeezing method and big and heavy clothes using a stick. Rub areas which are very dirty with hands or with a brush. Cottons require application of a whitening agent in the last rinse. For this use blue (indigo) which is available as powder or liquid. These days you get chemicals like optical brighteners in the market. These are colourless fluorescent dyes which turn pale fabrics to white and make them look brighter temporarily.
- iii) **Rinsing :** Washed fabrics must be rinsed thrice or till they leave the contents of leftover soap or detergent.
- 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.
  - Before starching a garment turn it inside out 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.
    - i) Generally, we starch table clothes, mats, tray clothe and napkins, heavily and inner wear garments lightly.
    - ii) Do not starch under garments and those garments which are close fittings as the starch may cut your skin and make you uncomfortable.

- iii) If the clothes 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 cloth absorbs more blue, dip it in plain water with a few drops of white vinegar or lime juice. The extra blue will get removed.

- v) **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 makes it pale.
- vi) **Ironing :** Cotton clothes are ironed best when they are evenly damp. Sprinkle water evenly on them, role 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.
- vii) **Storing :** After ironing, clothes must be kept in fresh air until they get dry completely. Then store them in almirah. Remember, fungus grows quickly on cotton fabrics. Hence, while storing cottons make sure that they are completely dry.
- Do not soak coloured cottons clothes because they becoming pale.
  - Wash using kneading and squeezing method.
  - Rinse thoroughly and apply starch after turning clothes inside out in the last rinse.
  - Dry in shade. Store clothes when they are completely dry.

2 table spoons of starch mixed in 5 liters of water is sufficient for starching 4-5 clothes

### 8.4.2 Laundering of synthetic clothes

Laundering of nylon, polyester and acrylic clothes is slightly different from other clothes.

- Use any good soap, rub lightly 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.
- Use luke-warm or cold water to iron synthetic clothes.
- If wrinkles are more, use hot water.

Store when completely dry.

**Remember :** While washing you can treat terrycot as synthetic fabric.

### 8.4.3 Laundering of silk clothes

Use luke-warm or cold water, and good neutral soap light pressure and light rubbing is applied for washing. There is no need to soak silk clothes.

- Rinse well in cold water to remove soap completely.
- Apply starch (gum arabica) and dry in shade.
- Pick up the clothes when evenly damp and iron with a warm iron. Silk gets stained if water is sprinkled on dry clothes.
- Store preferably on hangers when completely dry.

### 8.4.4 Laundering of woolen clothes

Woolens are more delicate than any of the fabrics used in the house. Hence woolens need utmost care while washing. Knitted woolen clothes lose shape when wet, hence they 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.
- Use kneading and squeezing method to wash.
- Rinse thoroughly, to avoid wrinkles.
- 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 put naphthalene balls or odonil tablets while storing.

#### *Check Your Progress...*

- 1) Mention two methods of washing clothes.
- 2) Which clothes should not be starched? What is the reason?
- 3) What care should be taken to store cotton clothes.

## Key Points

- Laundering consists of Washing or dry-cleaning garments to remove dirt, perspiration and smell. Using stiffening agents like starch and gum and brightening or bleaching agents, drying them and then iron or press them and finally fold and hang garments at a secured place.
- Removing grease using absorbents and solvents is called dry cleaning leather, fur, selected silks and woolens, zari and other costly fabrics are dry cleaned.
- Clothes can be washed by Friction methods namely hand friction; scrubbing with brush; beating with stick and washing by kneading and squeezing.
- Clothes should preferably be dried outside in fresh air and sun.
- Laundry should be done separately for plain and coloured cottons and should be dried in under shade.
- It is important to follow ironing instructions and also follow the appropriate ironing temperature.

## Practice for learning outcomes

- 1) What is the temperature range to be used for ironing different types of fabrics?
- 2) What are the laundering skills.
- 3) How will you wash a white cotton garment? Explain with reasons
- 4) How does the laundering of synthetic clothes differ from laundering of cotton clothes?
- 5) Identify the garments which require extra hot temperature for ironing from the following. ( )  
A) Nylon  
B) Linen  
C) Wool  
D) Silk
- 6) Identify the appropriate garments for which stiffening agents can be used. ( )  
A) Rayon  
B) Linen  
C) Wool  
D) Polyester



# Clothing and Linen for the Family

We wear clothes for protection against climate, modesty and beauty, and also to show status. In the last units we have learnt about fibres and their properties, fabric construction methods, and the different types of finishing touches applied to textiles. These finishing touches give fabric a specific look with the help of which we are able to recognise the fabric.

- **What is household linen?**
- **What factors do you consider while purchasing clothes?**
- **What are the indicators of fabric quality?**
- **What do the labels on the garments indicate?**

Let us know more details of them and sort out some of the problems related to selection of textiles and fabric for household goods intended for daily use, such as bedding, tablecloths and towels etc.

## Learning Outcomes

### The learner...

- ◆ Explains the selection of fabrics for different uses based on fabric properties.
- ◆ List out and explains the factors influencing selection of clothing.
- ◆ Identifies the importance of labels and markings as quality indicators.
- ◆ Explains malpractices in trading of textiles and clothing.
- ◆ Explains the points to be kept in mind while judging quality of textile products and ready-made garments.
- ◆ Explains the differences between garments chosen for personal and household needs.
- ◆ Classifies fibres and fabrics basing on the characteristics.
- ◆ Applies scientific concepts learnt about fabrics in day to day life.

## 9.1 Selection of fabric for different uses

- What are the different uses of household fabrics?
- Why do you buy cotton and not synthetics for summer wear?

Generally, we use different fabrics for different purposes in the home. Like, fabric used for curtains is different from the fabric used for apparel or the other garments. A particular type of fabric is used for a particular purpose. The difference in fabrics depends on fibre, yarn, fabric construction techniques and also the finishing given to the fabric. Let us learn about the properties of fibres influence our selection of textiles and clothing.

### 9.1.1 Properties of fibres

Let's look at how properties of fabric like, length and appearance, moisture absorption, heat conductivity and strength affect the selection of fabric.

#### i) Length and appearance :

Cotton, jute and wool are natural fibres where as nylon and polyester are synthetic fibres. The fabrics made with natural fibres have a rough look and those made with synthetic fibres have a smooth and shiny look. Also, short wavy fibres like those of cotton and wool tend to become dirty very easily. Whenever we need cloth with a smooth and shiny look, we will look for fabrics made of synthetic and silk fibres. For this some finishings are applied on rough and dull fabrics which give them a smooth and shiny appearance. For example, starched cotton has a smooth look. But starch is a temporary finish which is removed on washing.

ii) **Moisture absorption** : Cotton absorbs moisture easily whereas synthetic fabrics have low moisture absorbency. When the weather is hot and humid, we prefer cotton clothes because they absorb the perspiration and keep the skin cool. Since synthetic clothes do not absorb sweat, they are uncomfortable to wear in summers. Similarly, while choosing undergarments and socks, this property must be kept in mind.

iii) **Heat conductivity** : This property refers to the ability of the fibre to conduct heat away from the body. Cotton and rayon are good conductors of heat and keep the body cool. Woollen clothes are very bad conductor of heat, hence keeps the body warm. Keep this property of fabrics in mind when you choose clothes for summer or winter. Selecting cotton clothes for summers and woollens for winter is a very good choice.

iv) **Strength** : Ease of washing a fabric depends upon the strength of it. Some fibres become weak when wet. Examples: Wool, silk, rayon etc. Fabrics like cotton and synthetics are extremely strong and can be washed and cleaned easily. Hence, clothes for daily wear which need frequent washing must be made of cotton or synthetic fabrics. Delicate



fabrics like silk are more suitable for occasional use. So that, they need not be washed frequently. Being the strongest fabric, nylon is used for industrial purposes, for making parachutes and ropes.

How can you find out the true quality of a garment that looks good? Take the corner of the cloth and rub it between your hands. If a white powder chalks out of the cloth, avoid buying it. So, when you are selecting fabrics, remember that all that shines and looks good cannot be of good quality. See carefully what you are buying and what its use is. Knowledge of fabric properties will guide you to make a correct decision.

### *Check Your Progress...*

- 1) How do you get an assurance that what you are buying is according to your requirement?
- 2) Write down the factors influencing in selection of fabrics?

## **9.2 Factors influencing selection of clothing**

- Which fabric is suitable for making baby garments?
- Which fabric is poor conductor of heat?
- Which fabric keeps you warm in winter?

The clothes that you choose to buy and wear are influenced by several factors such as climate, age, occasion, activity and occupation.

### **9.2.1 Climatic factors**

Wearing clothes according to season is also important to maintain good health. Clothes protect us from extreme heat and cold. Besides, clothes must be clean or else will cause problems to skin. We wear cottons in summer. They keep the skin comfortable because they absorb sweat to keep the body cool and dry. We wear woollens in winter. Wool keeps us warm and protects us from cold during winter. As you know woollen clothes are expensive and proper care is needed for their maintenance. People living in cold climate need to wear woollen clothes to keep warm. People living in very hot climates as in deserts need to wear turbans of thick cloth to protect their heads and wear long robes to stay cool.

### **9.2.2 Occasions**

When you are attending a marriage you wear dresses in bright colours like lehenga cholis, ghagras and shararas. We would prefer, rather feel comfortable in dresses which fits well and allows for ease of movement on busy routine days. Simple clothing with minimum accessories like a formal salwar kameez will give a more professional look for an interview. Sari, formal trousers, shirt, tie would be a good option that will make you feel active and confident.



### 9.2.3 Age

The type of clothing worn change with the age. Clothes worn by an "adult-woman" are definitely not the same as those worn by a college going girl. Similarly, men will prefer to wear light and comfortable clothes rather than fashionable ones. Let us see how the type of clothes worn change with age.

**i) Infant wear :** The clothing requirements from birth to 12 months of age are few. The major requirements of the newborn are for warmth, comfort and cleanliness. Clothes should be soft and light as babies have tender and delicate skin. Their clothes should be simple to put on and take off. It is also important that they should be easy to maintain. Cotton shirts that slip on or that have double-breasted front opening with snaps are some easy to wear styles. The diapers should be made of absorbent and soft cotton material.



**ii) School going children :** Children of this age group are in the growing stage. They like to run, play and are very active. Hence, their clothes must be made of strong and durable fabrics, which can take a lot of wear and tear. While selecting, do take care to see that there is adequate cloth inside the seams which can be opened up to fit rapidly growing children. The clothes must also be easy to wash as they get dirty frequently.



**iii) The youth :** This is the age when one starts going to college. Teenagers are very conscious about clothes and want to wear the 'latest' styles. They like to have variety in their clothes because they do not want to repeat the same dress every day. It is advisable to select clothes which they can mix and match so that they can achieve variety with few clothes e.g. few colours of churidars or salwars can be combined with few 'Kameez' which can go with all legwears. Similarly if a teenage boy gets a couple of pair of jeans and a few T-shirts, he can wear them in different combinations.



**iv) Adults :** Selection of clothes for adults depends to a large extent upon the type of work that a person is engaged in. A working woman need clothes which are easy to launder and which do not need much ironing because she has very limited time. She will also prefer to wear clothes which do not easily wrinkle as she must look good till the end of the day.

- ◆ Which fabrics do not wrinkle easily?

- v) **Old age** : Old age brings its own problems. The body becomes stiff, the eye sight becomes weak and energy level is considerably reduced. The clothes they wear must be loose and comfortable rather than fashionable.

### 9.2.4 Profession / occupation

- What is the uniform of a soldier?

Doctor and nurses wear white or light coloured simple clothes. Such a dress gives a neat and clean look and also has a soothing effect on the patient. Many professions have a specific dress code which gives them a special identity, for example people working in the hotel industry, airlines, traffic policemen, security guards. Sportsmen especially athletes and tennis players wear tiny shorts and snug tops of highly absorbent fabric. Similarly a swim suit would look appropriate only near a swimming pool. Clubs, hotels and often formal parties have their own dress regulations.

When you have to take a long bus or train journey you should wear clothes comfortable for travelling i.e., preferably of dark colours and should not crumple easily.

Certain specialised activities require special apparel, for example special overcoats are worn by people who work in the laboratory, nuclear power plants. They protect the workers against radiation hazards. Workers in mines wear mining suits and special helmets fitted with torches. Divers wear wet suits with slippers that help them move easily under water. Astronauts wear space suits fitted with total life support system to sustain and protect them from the harmful effects of outer space. Firemen wear apparel made of fire proof fabrics. What should you wear while working in the kitchen? Yes, go in for snug cotton clothing. Avoid loose fitting clothes and hanging dhupattas and shawls.

#### *Check your progress...*

- 1) Write about the special dresses wear by any five professionals.
- 2) What properties will you keep in mind, while selecting summer wear garments?
- 3) What are the reasons for changing clothing choice with the age?

### 9.3 Labels and markings

- What is the use of different types of labels attached to garments?

A label is a piece of paper or plastic that is attached to the fabrics and garments in order to give information about them. A garment label is a communicator between the buyer and product. A garment label contains various types of information of that garment, such as buyer name, country of origin, types of fabric, types of yarn, fabric composition, garments size, special instruction about care etc. The information on labels includes brand names, pictures, designs, date of manufacture, packing etc. and any other legal material that the manufacturer may care to put on it.

The labels have some written information or some graphic display. Labels are made of many types of material- eg., paper, cardboard, fabric, tin or a simple tag attached to the product. In packages these can be a part of the package.

- What about label on the yardage?

In the beginning of each fabric or 'Thaan' there is a symbol called a 'marking'. Sometimes we just look at the emblem, picture or name by which we may identify the product. Eg. Bombay Dyeing. 'Wool mark' is used for pure wool products. There are also *care labels* which give information regarding washing, ironing, storing, etc. of the product.

Another type of labels are designed to tell consumers about care, usage composition of a product and performance. This type of label is called *informative label*. However what all is given on a marking may not be meaningful, for example, a name like Lizy bizi is not providing any meaningful information about the composition of the fabric.

### Activity-1

Collect 10 samples of labels. Look at them carefully and fill up the following table. One of these has been done for your convenience.

Sl.No.	Label	Information provided	Placement of the label
1	XL	Size : Extra large.	Stitched at the back of neckline / collar.
2			

#### Check your progress...

- 1) What do the labels on clothing and apparel indicate?

## 9.4 Malpractices in sales

- What qualities do one look for while selection and purchasing fabrics?

You all must have heard about various types of malpractices by traders or manufacturers of food items or electrical gadgets. Same is the case with the textiles and clothing sector. It is essential for all of us to know about them and to do the needful to control them. Some of the commonly observed malpractices in this area are;

### a) Giving lesser quantity and/or poor quality of the product :

Four meters of fabric bought for a suit often turns out to be 3.80 meters when you measure it. The retailer who does this, either uses a short measuring rod or stretches the fabric while measuring it.

### **b) Cheating on price :**

Traders charge more than the price displayed on the item or on the packet containing goods. They name some tax and add it to the price printed on to the label. They may show some word on the label, for example by showing 'silk finish' label and charge extra for it.

### **c) Selling defective goods :**

There are many traders sell materials of seconds as fresh and charge the price of fresh products. Sometimes traders may also sell materials by hiding small and unnoticed defects.

### **b) Providing false, misleading and incomplete labels and markings :**

When you buy fabric for curtains, the marking should tell about light fastness. If it does not, then it is incomplete information. The information provided on the label on a garment is often quite vague and incomplete. For example, a label on a ready-to-wear garment does not say anything about washing, drying, ironing, and storing of the item. So it is so consumers should to be alert and give no chance to the manufacturer or retailer to practice these malpractices and get in touch with concerned people to file complaint. There is a Consumer Protection Regulation Act (1988) which covers all the above discussed malpractices.

#### *Check your progress...*

- 1) What are the different malpractices prevalent in selling fabrics?

## **9.5 Guidelines for judging quality of fabrics**

- Which fabric is more soft and durable?
- Which criteria are considered in selection of ready-mades?

There are an astonishing variety of fabrics in the market these days. Manmade fibres, blends and a lot of natural fibres have brought a revolution in the textile industry. For instance, cottons blended with Lycra are very popular in pants and jeans. These are comfortable and give a good fit. Khadi and its blends with cotton and silk are catching the eye of both young and old. Many synthetic fibre blends are also popular because of their easy wear and care property. It is now possible to choose the fabric that is just right for a particular purpose.

When you go for selecting and purchasing fabrics just keep in mind the characters like appearance, durability, finish, comfort, care, structure, then you would be successful in making a good purchase.

- i) **Material :** The cloth should be pleasing to touch. Durability of fabric depends on the kind and quality of the fibre, strength of the yarn, the amount of twist in the yarn and compactness of struction. A closely woven fabric has a larger quantity of yarns than a loosely woven fabric and is therefore more durable.
- ii) **Weave :** The strength of the cloth may be tested by applying tension between the two thumbs. Yarns should not be obliquely placed. Filler yarns should meet selvages at right angle. Weave should be uniform when you hold it up to the light and check for any unusually thin or thick areas. The light test will also show up weak spots or any other irregularities.
- iii) **Finishing :** Note the smell of the clothes; it should be clean and not oily. Look against the light for even dyeing. When buying velvets, towels, etc. see that the nap or pile in raised fabrics is dense and fine.

*Check your progress...*

- 1) What aspects of weaving should be considered for the quality of the garments?
- 2) How to know the durability and softness of the fabric?

## 9.6 Selection of readymade garments / clothes

- Which factors should be taken into consideration while buying ready-made garments?

In today's fast moving life, it is very difficult to take out time for getting clothes stitched. We have to go to the market to buy a fabric, look for a tailor, order stitching and wait till the dress is ready. To escape from all of these we have an alternative of buying a ready-made dresses / clothes.

There are markets which sell ready-made garments at a very low price. The only problem is that these items are not made with your measurements hence may not fit you. Hence it is important to know what you should look for when you are buying a readymade dress.

### 9.6.1 Guide to purchase ready-made clothes

- i) **Design of the garment :** The design of any cloth is based on four important elements Shape, form, colour and texture and the type of fabric. The following factors should be taken into consideration while buying ready-made garments.

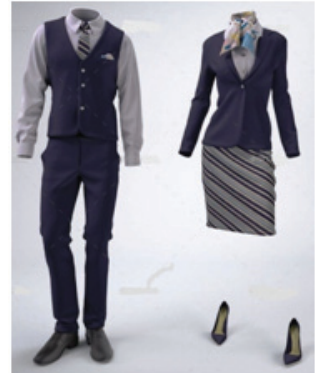
- ◆ Reliable shop
- ◆ Suitable for the occasion
- ◆ Within the budget
- ◆ Correct size and fit





- ◆ Non fading colour
- ◆ Pleasing design
- ◆ Latest fashion / design / style
- ◆ Right choice for the amount paid
- ◆ Suitable to the climate
- ◆ Adequate trimmings / workmanship
- ◆ Colour fastness
- ◆ Accepted style
- ◆ Label with care and washing instructions information
- ◆ Hand feel and Satisfaction

**ii) Fit :** After you have selected a dress based on its outer appeal, you have to see the size and fit. In fitting, we look at the shoulders, bust, waist and length. It should be appealing to the figure. Take the exact measurements of the person and buy the garment accordingly.



- 3) Workmanship :** Look at the back side of the dress for structural details. Pull one end of the seam to check the durability. There should be enough seam allowance flexibility. Check the fasteners and zippers by opening and closing. No raw edges should be visible. Piping's, facings, etc. should be neatly done.
- 4) Price :** Price factor actually goes along with all above factors. The quality of fabric, constructional details, embroidery, etc. will definitely influence the price. Normally, we have the idea that high priced garments are expected to be of high quality, but this is not always true.
- 5) Care and maintenance :** Most of the time when we buy a dress and after its first wash we find that the colour of piping spoils the whole dress, or sometimes after ironing, the lace gets burnt. For a wise selection of readymade garments we should read the care instructions at the time of purchase and tally with the price. Buy a fabric which requires minimum of care and maintenance.

### 9.6.2 Disadvantages of ready-made garments / clothes

- The sizes are standardised and with a limited fit. Proper fitting is not possible some times.
- Sizes vary according to the country, brand and product.
- Not possible to recognize the garment quality.

- Fabrics are not always of the best quality.
- You have to select from the available models.
- Some of the readymade garments are less durable due to poor quality in stitching.

### 9.6.3 Differences between home-stitched and ready-made garments

Readymade and tailor made garments both have their own advantages and disadvantages.

#### Differences between home-stitched and ready-made garments

Home-stitched garments	Ready-made garments
Tailoring is for an individual person or a small group of people.	Garments industries are for mass people.
A garment is made for a particular person.	Garments are made for many people at a time.
Body measurement of a particular person is taken into an account.	Standard body measurements chart is taken into an account.
No grading is done.	Grading is done for a particular size.
Exact designs and coloured garments can be made.	Exact designs and coloured garments are not available.
Single ply of fabric is used during cutting.	Multiple plies of fabric are used during cutting.
Wastage of fabric is high.	Wastage of fabric is less.
Price may be high.	Price may be reasonable.
No need of pattern and get clothes of our choice.	Pattern is a must and may not get clothes of our choice.
It takes more time to make garments.	It takes comparatively less time.

### 9.6.4 Attire and costume design

- What do you mean by personal grooming and dressing?

Practicing personal grooming maintains his or her appearance and can promote positive self-esteem. Wearing fresh clothes neatly, especially attractively is called dressing and grooming. Need to dress as per one's profession that reflecting personality.

#### *Check your progress...*

- 1) What fabrics and dresses are most appropriate for college-going girls and why?
- 2) What is the meaning of readymade garments?

## Key Points

- Clothes are used for daily family members and household uses such as curtains, bedding, and table clothes, towels etc.
- The difference in fabrics depends on the thread, yarn, fabric construction methods and the finishing given to the fabric.
- The selection of clothes influenced by several factors such as climate, age, occasion, activity and occupation.
- We wear cottons in summers. It keeps the skin comfortable because it absorbs sweat and dries up quickly to keep the body cool and dry. We wear woollens in winters. Wool keeps you warm and protects you from cold during winters.
- During special occasions we wear bright coloured dresses.
- A label gives information about garments. It contains various types of information of that garment, such as buyer name, country of origin, type of fabric, types of yarn, fabric composition, garment size, special instructions about care etc.
- Giving lesser quantity or poor quality of the product, cheating on price defective goods are some of the commonly observed malpractices in textiles and clothing sector.
- Appearance, durability, comfort, construction, finishing etc. qualities will be considered while selecting and purchasing fabrics.
- We have to maintain some buying criteria for readymade garments such as reliable shop, suitable for the occasion, within the budget, correct size/fit, latest fashion or print, and wash and care instructions/ label information etc.
- Readymade and tailor made garments both have their own advantages and disadvantages.

## Practice for learning outcomes

- 1) What are the criteria considered during purchase of garments?
- 2) What are commonly observed malpractices in garment industry and textile industry?
- 3) Write about the disadvantages of ready-made garments.
- 4) Explain about the different types of labels?
- 5) What factors should be taken into consideration while buying ready-made garments?
- 6) Describe the factors which influence the purchase of clothes.
- 7) Write the differences between home-stitched and ready-made garments?
- 8) Identify the fabric from the following that is the most suitable for making baby garments. [     ]  
A. Polyester                      B. Cotton                      C. Nylon                      D. Silk
- 9) Which of the following is an advantage of home-stitched garments? [     ]  
A. Exact designs and coloured garments can be made  
B. Grading is done for a particular size.  
C. Price may be reasonable.  
D. Wastage of fabric is less.



# Housing

Shelter is the main basic need of Human beings after food and clothing.

All animals make shelters according to their requirements. The shelter of Human beings is called house. There are many types of houses like villa, independent house, apartment flat, bungalow hut etc.

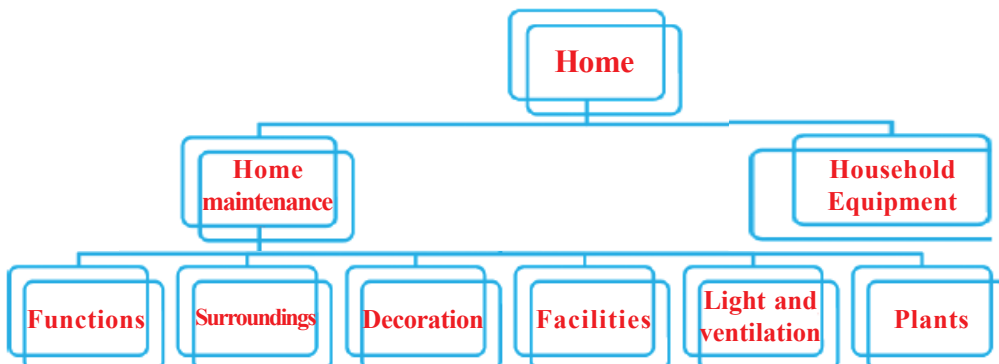
- What are your priorities, while selecting a house?

We need a home to living together with all our family members. There are many important considerations such as clean locations and surroundings and sanitation etc. while selecting a home. Let us discuss about the functions of home, how to utilize the space of home efficiently, how to decorate our homes aesthetically, cleaning and sanitation processes, how to maintain a home and household equipment. How to generate income from roof gardens etc. in detail in this chapter.

## Learning Outcomes

**The learner....**

- ◆ Explains the components related to maintenance of a home.
- ◆ Identifies different areas in the house for efficient utilisation.
- ◆ Maintains hygiene inside and outside the house in daily life.
- ◆ Relates the effect of poor sanitation to ill health at home.
- ◆ Organizes all areas of the home effectively and aesthetically.
- ◆ Appreciates the homemakers for making the house as home for home maintenance.



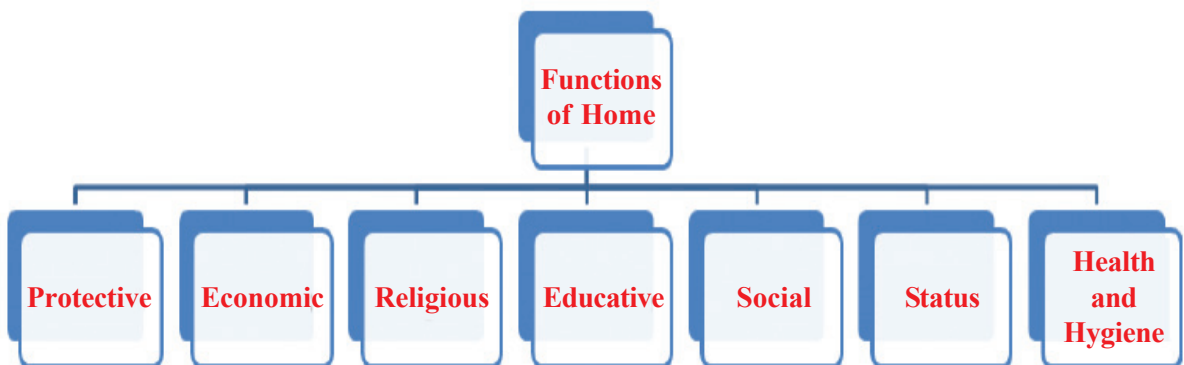
## 10.1 Functions of home:

- What is the difference between a house and a home?

In general the words 'Home' and 'House' are used interchangeably. But there is a difference.

HOUSE	HOME
<p>A physical construction is made of brick, sand and cement etc is called house.</p> 	<p>A family starts living in a 'house' and makes it a 'home' by sharing, loving and jointly performing different household activities with love and affection.</p> 

Now you must have understood that a home is much more than a house. A house has to be converted into a home. As the saying goes, "East or west home is the best". Home provides not only the shelter but also provides security and belongingness. It provides physical and emotional needs of all the family members. Let us discuss in detail.



**Protective :** Home provides security, shelter, protection from animals, dacoits and enemies. It also gives protection from extreme temperature and climate conditions.

**Economic :** Money is saved by staying together and sharing everything. Value in terms of money and can be used to perform some income generating activities.

**Religious :** Home is suitable place to perform the religious activities and to celebrate various festivals.

**Educative :** A child's basic education starts from home. It plays keyrole in the educational development of children.

**Social :** Home promotes interaction within and outside the family.

**Status :** Home and its maintenance. method enhances our status / value in the society.

**Health and Hygiene :** Home gives us mental peace, health and hygiene. It also helps us to release from stress and strain with love and affection.

### Check Your Progress...

- 1) What are the social functions of home?
- 2) How does the home gives protection to us?

## 10.2 Surroundings of home

Now you understand that our home meets many of our needs. Let us now know about measures to be taken regarding the surroundings of home which improves health and economic conditions.



**Physical environment :** Our house should not be close to heavy traffic areas and factories. Low lying areas, open drained areas should be avoided. An elevated area with good soil to grow our garden and water availability should be there.

**Neighbourhood :** Importance must be given to the neighborhood with social values. Ensure that our neighbours also maintain clean and hygienic conditions.

**Transport convenience :** Adults living in a house have to go to their jobs and children have to go to school or college. Transport facilities are required to meet our daily needs.

**Clean house and garbage free surroundings :** Home surroundings must be without garbage and drainage.

**Sanitation :** Ensure good sanitation in all the directions of our home. Now-a-day's all the areas are ODF (Open Defecation Free). So ensure that all the neighbours having Sulabh Shauchalaya and no open defecation in our surroundings.

**Greenery :** Plants absorb Carbon-di-Oxide and release Oxygen, which is useful for the living organisms. They reduce noise pollution, bring nature nearby and give fresh air to lead healthy and peaceful life. Ensure the plants growth inside and outside the home.

**Health and Hygienic :** Our home surroundings must be healthy and hygienic with beautiful nature. Avoid stagnant water pits, which are the reservoir for the insects, which causes diseases.

**Availability of Home appliances :** To meet our daily needs, we need a market (groceries and vegetable), post office, bank and hospital etc. should be within reasonable walking distance from the home.

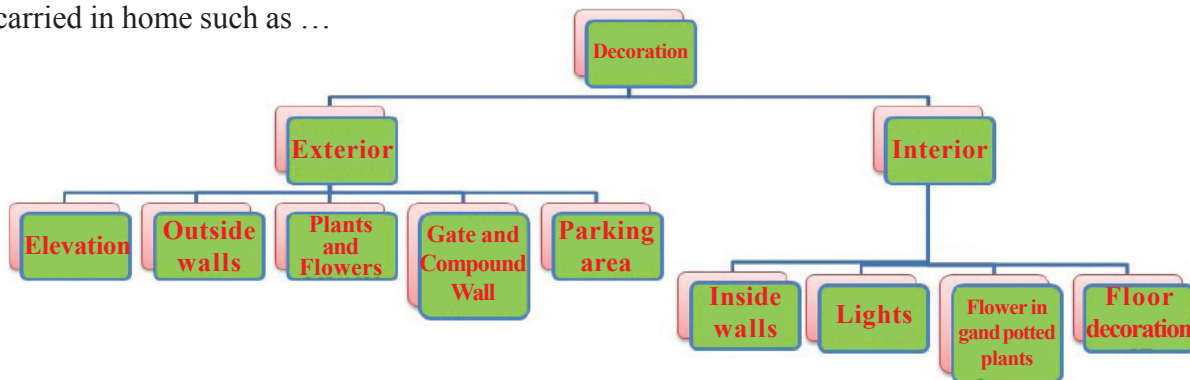


### Check Your Progress...

- 1) How greenary is important in our surroundings?
- 2) Why our home requires transport convenience?

## 10.3 Decoration

An ideal home is the one that provides space for all the activities such as cooking dining, sleeping, entertainment etc. We can make the best use of the available spaces with suitable decoration to make a house functional and be comfortable for all the occupants. Decoration is carried in home such as ...



**Exterior decoration :** This is the decoration made outside the house. Let us know in detail...

**Elevation :** Designed and symbolic elevation at home gives a remarkable grace and status in the society.

**Outside walls :** They must be painted with waterproof painting and if possible we may add designs also for rich and attractive look. Nowadays antidust paints are also available in the market.

**Plants and flowers :** Plants give pleasant atmosphere and peacefull surroundings. Plants along side walls, potted plants, creepers, vase flowers lit up the place with beauty.

**Gate, gate lights and compound wall :** Gate, gate lights and the design of compound wall with quality paints gives attraction and raises our socio economic status.

**Parking area :** Tiles in parking area must be attractive, strong, comfortable, rough and non slippery.

**Interior decoration :** This is the decoration made inside the home.

Our home consists of different parts. To perform these multiple activities, we must take care of the interior decoration.

**Inside walls :** Inside walls must be painted with light colors, which reflects the light very well and gives peace of mind. It is best to paint cartoons on the bedroom walls of children.

**Lights :** Proper lighting is important to perform various activities in the home. Decorative lighting and chandeliers enhances the beauty of the home, particularly during the evening hours. It is comfortable for children's study also.

**Flowering and potted plants :** Choose flowers and potted plants according to your taste and need. Greenery in the home also gives fresh air and mental peace. Place the flowers and potted plants where it can be seen and appreciated.

**Floor decoration :** Decorating the floor, kitchen with tiles gives beauty to the home. Rangoli etc., are done at the entrance of house, on steps, in front of pooja room and as a border of the room. Generally marble flooring gives long life.

### *Check Your Progress...*

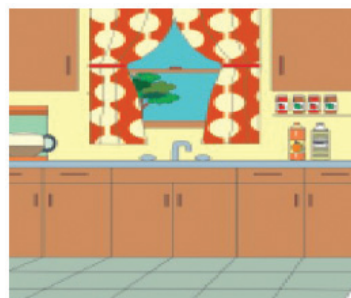
- 1) Why should we decorate our home?
- 2) Why does paints on the outside walls and in side walls of home should be different?

## 10.4 Facilities

Our home consists of different parts. These are cooking, eating, sleeping, bathing, storing, entertaining, studying etc.

The following are some facilities to be present in the house.

**Kitchen :** Ideally kitchen should be in the east or south east corner to get direct sunlight during morning. Sunlight has disinfectant properties which kills the germs. A kitchen should have a good drainage system and storage space. For sanitation wiremesh doors should be provided to keep away flies and mosquitoes. Exhaust fan can be installed to exit smoke. The kitchen should have light colors on walls which reflect maximum light. There should be adequate arrangements for standing and cooking.



**Hall or study room :** It is a place to entertain guests, relaxation, reading and entertainment. It should be near the entrance of the building. Furniture is arranged in such a manner that people can see and talk to each other comfortably. Good lighting is needed for reading as well as viewing digital lessons.

**Bedrooms :** We spend 1/3rd of our life in sleeping and taking rest in bedrooms. They should offer privacy and be free from noise. Rectangular bedrooms are more convenient for accommodating beds, other furniture and storage. Preferably bedroom should have an attached bathroom or toilet. A dressing table can be provided in this room. A good wardrobe should be there to keep clothes.





**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.

All the necessary equipment in the room should be arranged conveniently.

By careful planning and following the above tips, our family can enjoy a comfortable home.

- First of all make a list of all the activities which take place in each room.
- Mark space for every activity. Allot appropriate space to different activities to be performed in the home.
- Do not fill rooms with unnecessary materials. Many tasks can be facilitated by furnishing multipurpose furniture such as dining can be combined with kitchen or drawing room or study can be combined with bedroom.
- 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 store room or converted into a toilet.

### Activity-1

Fill the table according to facilities available in your home.

Required facility / character	Present / Absent	Suggestion to improve
Clean and dustless surroundings		
Friendly neighbours		
Clean and hygienic home		
Availability of home appliances		
Transport facilities		
Availability of shops		

#### Check Your Progress...

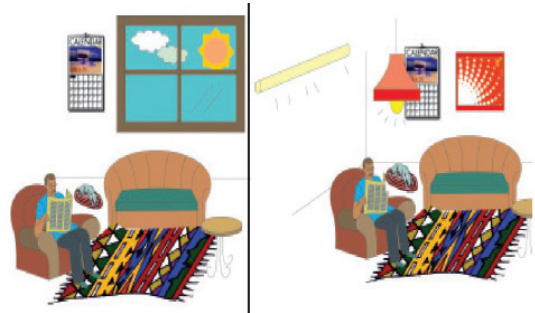
- 1) What facilities should be present in the hall of a home? Write the benefits of each facility.

## 10.5 MAINTAINING HYGIENE INSIDE AND OUTSIDE THE HOUSE

Let us discuss the aspects which are important in maintaining hygiene for a healthy living. Three aspects need special care.

- Light
- Ventilation
- Sanitation

**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 through electricity etc.

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 home. This increases the chances of infections and fungal diseases.



**Ventilation :** You know that houses have doors, windows, and 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. We must ensure that the home has proper ventilation. Cross ventilation is desirable, the openings at the floor level help to bring in fresh air and the openings near the ceilings drive out stale air.

**Sanitation :** In order to prevent the spread of diseases and to keep our home and home environment clean and healthy sanitation must be provided by removing garbage and human excreta time to time.



### *Check Your Progress...*

- 1) Why we require lighting for our home?
- 2) What is the necessity of windows and ventilations?

## 10.6 Maintaining cleanliness

Dust is a great enemy of our health, as most of the diseases are spread by it. So, it must be removed. Use green dustbins for biodegradable waste and blue dustbins for non-biodegradable waste. It can be used as compost or can be disposed.



Generally the entire house is thoroughly cleaned only before some major festivals or special occasions like a marriage in the family or a birth celebration. We do some clearing activities daily, weekly and seasonally. They are many tools available in the market to make our work easier.

### Project Work

Complete the following table by doing the project.

Cleaning process	Daily	Weekly	Monthly	Seasonally	Material used
Sweeping and mopping of floors					
Dusting surfaces, cleaning of carpets					
Cleaning of bathrooms, toilets and wash basins					
Polishing the wooden surfaces and other areas					
Cleaning of rooms after removing all furniture					
Removing cobwebs, cleaning shelves of kitchens					
Airing mattresses, pillow, rugs and carpets in sunlight					
Cleaning store room					
Washing curtains and bed sheets					
Separation and throwing out wet and dry waste					

### 10.6.1 General points to be considered for cleaning home

- Thorough knowledge of the methods of cleaning will simplifying the work.
- 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: Sweep from inside to outside of the home. 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.

### 10.6.2 Cleaning of different surfaces and materials

The home 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.

Surfaces	Materials required
Floors	Broom, brushes, soap or detergent, water, lime phenyl etc
Ceramic tiles, kitchen and bathroom tiles	Soap or detergent, commercial tile cleaners, hydrochloric acid etc.
Plastic mug, buckets, chairs, taps	Luke warm soap or detergent solution, vinegar and avoid hard cleaners
Glass / mirror windows glass / mirror	Moist news paper pad, vinegar and commercial glass cleaners etc.
Metal taps, brass taps, iron articles	Lemon, vinegar, tamarind, hot soapy water etc.
Wood surfaces	Soft cloth, sponge wrung out of a mild soap and vinegar etc.

### 10.6.3 Removal of garbage

During our household activities, garbage and domestic waste is produced. Household waste generally has two kinds of waste material.

- Biodegradable waste :** Kitchen waste that is vegetables and fruit peels are biodegradable and should be placed in green dustbin. In rural areas, a pit should be dug for the disposal of bio-degradable household garbage. It should be covered with soil. After sometime, the garbage will turn into manure, which can be used in the kitchen garden.
- Non-biodegradable waste :** Polythene bags, plastic bottles are non-biodegradable. They should be placed in blue dustbin and disposed.



## 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 the kitchen garden or a soakage pit. We should never let waste water stagnate near the house.

Therefore, soakage pits are the best alternative for disposing off waste water.

### 10.6.4 Soaking Pit :

These are very important for areas where there is no drainage system. It is the best way to harvest rain water and other type of water in our houses.

**Procedure to construct soakate pit :** 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 pieces. The middle portion is filled with small stones and pebbles and the upper most portion with sand. The soakage pit may be covered with soil and grass. The waste water from the house is led through a drainage pipe in to the soakage pit. The waste gradually percolates and soaks away into the ground from the pit.

## Project Work

Collect the information from your surroundings and fill the table.

Sl.No.	Details	Presently doing	Suggestion to improve
1	Collection of waste material		
2	Separation of dry and wet waste		
3	Composting the wet waste		
4	Drainage details		
5	Usage of public dustbins		
6	Throwing dry waste		
7	Cleaning of drainage		



### *Check Your Progress...*

- 1) Write the procedure to construct the soakage pit.
- 2) Write about waste management procedures methods.

## 9.7 Plants

Greenery makes positive thinking and gives fresh air. We have to concentrate on growing plants in

**General gardens :** Where ever the open space is there, fill it with plants. They gives us fresh air and pleasure. Make some space available for potted plants also.

**Kitchen garden :** Leafy vegetables, coriander, mint etc. can be grown in the home premises.

**Roof garden :** Now-a-day's roof garden is very much popular and it is also an income generating source. These plants are of economic source and can be used for self.



### *Check your progress...*

- 1) How do we get income from roof garden?

## Key Points

- Shelter is the main basic need. Human beings shelter is called home.
- There are many important considerations such as location, surroundings, sanitation etc while selecting a home.
- Home provides not only the shelter but also provides security and belongingness.
- Home provides physical and emotional needs of all the family members.
- It is important that certain points are kept in mind while selecting the home in the suitable surroundings, which plays an important role in our healthy living.
- Ensure regular cleaning using proper methods to simplify work at home and work place to save time and energy.

- Now a day's roof garden is very much popular and it is an income generating source also.
- Soakage pits are the best alternative for disposing off waste water.
- All the necessary equipment in the home should be arranged conveniently.
- Home should be provided with some facilities for comfortable living of all family members.
- Light, ventilation and sanitation are important for healthy living.
- Keep surroundings clean, sanitized that makes us disease free.
- We should convert roof garden as income generating source, by growing all varieties of plants.

### Practice for learning outcomes

- 1) How lighting influences our health?
- 2) How can we arrange air movement / transpiration at home?
- 3) What are the activities carried out at home?
- 4) Choose the wrong one. Drainage pipes and tubes should be kept clean. This leads to ( )
  - a) smells foul
  - b) waste water flows well
  - c) insect population will increase
  - d) neighbours envy
- 5) Write the procedure of soakage pit construction.
- 6) What are the different types of materials needed to clean various items in the home.
- 7) Which facilities are to be provided in the hall.
- 8) Write the differences between house and home.
- 9) Why decoration is essential for home?
- 10) Match the following :
 

i. Biodegradable waste	( )	a. blue colour dust bin
ii. Non-biodegradable waste	( )	b. outside walls of home
iii. Water proof paint	( )	c. inside walls of home
iv. Light colour paint	( )	d. green colour dust bin
- 11) Write about the facilities needed for your home.



# Household Equipment

Household equipment is a device which assists in household functions such as cooking, cleaning, food preservation etc. Household equipments like mixer, washing machine, fridge etc makes the job better and with ease to a home maker. Home maker must know how to use them correctly and how to repair this equipment to function properly.

- What are the changes that occurred in work in modern home appliances time to that of earlier time?
- What are the household equipments you purchased recently?
- What are the aspects did you consider while purchasing those equipments?

When we go to the market to buy any equipment, we are confronted with a wide range – in cost, quality, design, material used, and the finishing used etc. We can't imagine the modern life without household equipment. While choosing required household equipment, what are the points to be kept in mind, how to use them, how to take care of them etc. are discussed in this chapter.

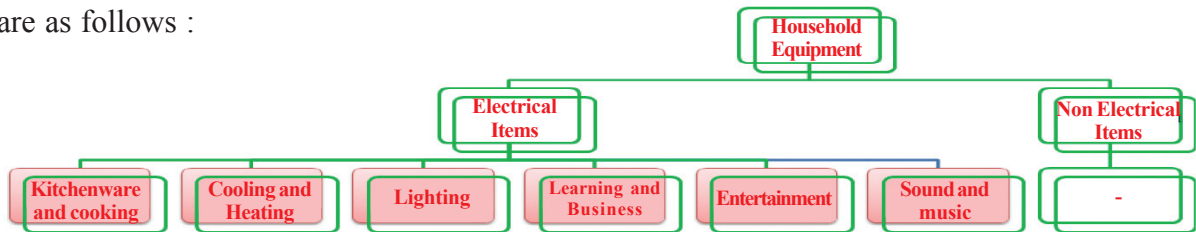
## Learning Outcomes

### The learner....

- ◆ Explains the function of household equipment such as mixer, fridge and grinder etc.
- ◆ Compares the cost of household equipment with quality.
- ◆ Makes list of household equipments required for a home.
- ◆ Justifies the purchase of household equipment such as computer for learning.
- ◆ Draws the diagrams of household equipment such as fridge, television, mixer, grinder etc.
- ◆ Appreciates the persons, who will take necessary precautions, while using household equipment.

## Various types of household equipments

There are house hold equipments that are utilised with or without applying electricity. They are as follows :



### 11.1 Electrical household equipment

Purchasing and using things suitable for home is an art. Let us see the various types' electrical household equipment which is useful for home.

**Kitchenware :** Kitchenware is the household equipment which is present in kitchen and used for cooking. Many electrical items are used by the homemakers in the kitchen to do their work with ease.

Some are ...

mixie, grinder, electrical cooker, electrical stove, coffee maker, blender, food processor, electrical grill, oven, toaster, slicer etc.

**Cooling and heating :** Many household electrical appliances are used for cooling and preservation of food material, fruits and vegetables such as fan, cooler, air Conditioner, refrigerator etc. Some equipment are used for heating purpose such as heater geysor, iron box etc. for comfortable living.

**Lighting :** Many electrical items are used for lighting, when sunlight is not available. Some are... bulbs, tube lights, CFL and LED's etc.

**Learning, earning and communication :** Each and every individual wants to learn something in daily life. For learning, earning, communication, professional growth and development we are using some electrical gadgets in our daily life.

Some are... pagers, mobile phones, tabs, walki-talkies, wireless sets, laptops, desktop, Internet modems, routers, computers and printers etc.

**Music and entertainment :** Music and entertainment are the part of our life to live comfortably and peacefully. Mobile, television and computers, camera etc...

These equipments plays a key role in conducting webinars and virtual meetings.

Exercise, health and hygiene : We are using so many electrical equipments for our health and hygiene. Such as treadmill, vacume cleaners, water purifier, mosquito repellants, vaporisers, swaping and moping items etc.

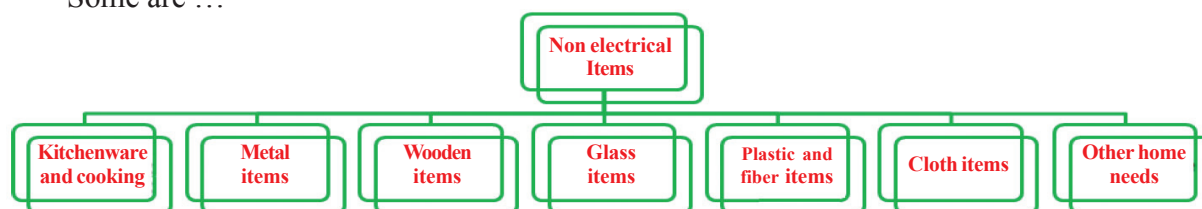
### Check Your Progress...

- 1) What are the electrical household equipment used for cooking?
- 2) What are the electrical household equipment used for health and exercise?

## 11.2 Non- electrical household equipment

Various types of non-electrical equipments plays key role in the comfortable living.

Some are ...



**Kitchenware and cooking :** A wide variety of non-electrical equipment is required in the kitchen for the purpose of cooking and its requirements, which include metal plates, vessels, cookers, pans, storing boxes, wooden items, glass and fiber and earthen pots etc.

**Metal items :** Now-a-day's artificial metal furniture such as tables, chairs, sofa, beds, water storage units and small ladders etc... are used in houses.

**Wooden items :** The items made of wood is all time best for usage. Such as tables, chairs, sofa, dining table, cots, dressing tables, small ladders etc.

**Glass items :** Using glass items is the status symbol glassware are used at home. Plates, dressing tables, bowls, bottles, ward-robos and glasses etc.

**Plastic and fiber items :** For temporary and easy moving purpose people purchase this type of furniture, such as chairs, tables, sofa, beds, plates, water storage units and glasses.

**Cloth items :** Cloth items are useful for the comfortable and decorative purpose such as beds, pillows or mattresses etc...

**Other home needs :** They includes cloth bags, dust bins, watering can, gardening tools, tool kit, sanitizer stand etc.

### Check Your Progress...

- 1) Write about kitchen ware at your home.
- 2) Name some household items made up of different material.

## 11.3 Constructions and precautions of electrical household equipment

Let us know about structure and function of some equipments in daily use.

### 11.3.1 Iron box

The heat supplied to the ironing surface (or) sole plate is used for ironing. The lower surface of the sole plate is smooth so that it moves easily over the fabric. Iron is two types : 1) Automatic 2) Non-automatic. The automatic iron has a thermostatic control, which helps us to raise or lower the temperature according to the cloth to be ironed. Now a days steam iron boxes are available in the market.



#### *Precautions while using iron box :*

- Keep the bottom of the iron clean and shining. Otherwise it will leave marks on the cloth.
- Do not leave the iron on the cloth, when the switch is still on for very long time. This will burn the cloth.
- Do not touch the iron with your hand to test the hotness. Because you can get an electrical shock. Wait for the neon indicator- lamp to light up.
- Use a three pin plug to connect the iron to the plug point. This ensures proper earthing of the equipment.

### 11.3.2 Toaster

The toaster is a kind of equipment used to toast bread in order to make it crisp. It has two slots which can hold two or four slices of bread. The electrical element produces the heat needed to make the bread hot and crisp.

Toasters are two types; automatic and non-automatic. The automatic models have a heat regulator which can be set at the desired temperature. At that temperature the bread slices are released automatically and pop out of the toaster. In the non-automatic types you have to release the slices by pressing a knob.



#### *Precautions while using iron toaster :*

- Do not use a fork to remove the toast. There is a chance of electric shock, since the coils are not insulated.
- Do not place the bread with filling in the toaster. Because the filling will melt and catch fire.
- Do not drop or shake, as this may damage the heating element.
- Disconnect the toaster and food processor from the electric supply before cleaning.

### 11.3.3 Mixie

The mixer grinder is an equipment which saves lot of our time and labour. It can grind dry masala and make chutney or even lassi very quickly. It is used for two types of grinding.

- i. Dry grinding: This is used for dry grinding of masalas, coffee seeds, cereals like dalia etc. In this water is not used.
- ii. Wet grinding: This operation needs some amount of water like making chutneys, milkshakes, lassi and masala paste etc. Water is used in wet grinder.



**Structure :** Mixer consists of a base, container and a cover for the container. Base has motor control inside. There are many sharp steel blades in the container. Most models available today have many advanced functions of food processors. The cost of mixie or food processor varies with the number of attachments and functions.

#### *Precautions while using mixie :*

- Use the mixer with three-pin plug and at the correct wattage and voltage as indicated.
- Cover the blades with enough food in the bowl. Food should not exceed to 3/4 in the container, otherwise the grinding will not be adequate.
- If you are using ice, use crushed ice instead of whole pieces. Because big pieces may break the blades.
- For longer life of the mixer, do not run the motor continuously for long periods.
- Always give break after some time and increase or decrease the speed gradually.
- For removing sticky food add warm water and some detergent and then run it for sometime.

### 11.3.4 Refrigerator (Fridge)

It uses electricity to keep the temperature low inside the box. Food kept at such a low temperature does not get spoiled for a long time. The refrigerator also serves the purpose of giving us cold water and ice in the summer. Now-a-days modern refrigerators are available in the market, with special features such as single door, double door, special freezer etc.

#### *Precautions while using refrigerator :*

- Use a three pin plug to connect the fridge to the power plug point.
- Do not open refrigerator door too often. Because opening of the door raises the temperature inside and the refrigerator becomes less efficient.





- Leave some space at the back and sides for the free circulation of air over the condenser coils at the back.
- Never place the hot food inside the refrigerator as this raises its temperature and decreases its efficiency.
- Defrost the freezer compartment periodically to remove the ice that cover the tubes. This is not needed in the frost free models.
- Clean the foods spilled inside immediately and keep the shelves and walls free from moisture.
- Disconnect the plug before cleaning the refrigerator, to avoid electric shock.

### 11.3.5 Water heater



Water heater is used to get hot water quickly. It is made up of nichrome (Nickel + Chromium) elements. It becomes hot when electric current passes through it. When it is placed in the water, it heats up the water. Now-a-days modern geysors are available in the market.



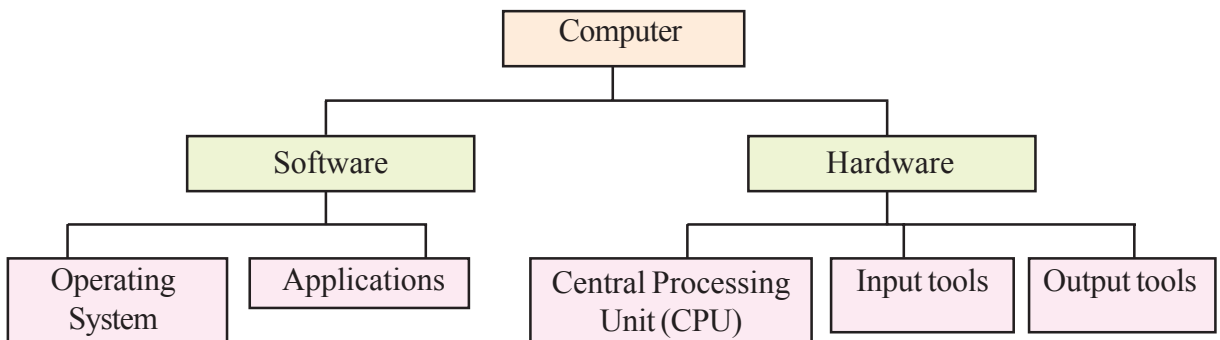
#### *Precautions while using water heater :*

- Don't touch the water to test the hotness of the water, when water heater is switched on.
- Always use a three pin plug, so that the equipment is properly earthed. Read the instructions carefully before using.
- Use wooden board to hang immersion rod to reduce the chance of an electric shock.

### 11.3.6 Computer

Computer is a modern technological gadget that works with electricity. It helps in learning, professional advancement and income generating source also.

In the Covid - pandemic scenario it has become an essential household gadget. It contains the followign parts.



- In computer, operating system and different types of applications together known as software.
- Different hardware tools are connected with central processing unit (CPU).
- Monitor is output device which displays the information.
- Commands can be given to the computer by using input devices like keyboard and mouse etc.
- Hard disk is used to store data.
- Digital data can be transferred by using devices such as pendrive (USB), CD, DVD etc.
- Laptop, tabs are easy to carry with us than desktop computer.

### *Check Your Progress...*

- 1) Explain about software and hardware of computer.
- 2) What are the precautions in using refrigerator?

## **11.4 Structure and function of Non-electrical household equipment**

Let us know about structure and function of some non-electrical equipment used in our daily life.

### **11.4.1 Pressure cooker**



Pressure cooker body is made up of aluminum or stainless steel. It is available in different sizes. It takes less time to cook the food materials, because of heat and pressure. Safety valve is on lid top and gasket inside the lid are present in cooker to send the pressure outside .

#### *Precautions while using pressure cooker :*

- Don't close the hole, which release the pressure. It will leads to the blasing of the cooker.
- Don't open the whistle with hand to release the pressure.
- Observe the gasket regularly, and change the gasket, if not functioning properly.

### **11.4.2 Grater / Slicer**

Grater is used to grate food into fine pieces according to the slots / holes present on its surface. Several (Electrical and non-electrical) types and models of graters are available in the market. Actually it is invented to grate the cheese. Now it is available in different models to grate different types of food.



### 11.4.3 Peeler

Peeler is a kitchen tool used for vegetable scraper (remove the outer layer). This instrument have a sharp blade and a handle. Some peeler blades are serrated also.



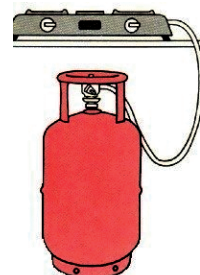
### 11.4.4. Beater

A beater is kitchen tool used to beat and emulsify the food. It is also used for introducing air into food materials. For the different food requirements various types of beaters are available in the market. Ex: Whisk beater (for eggs.), flat beater (batter), rai beater (for curd to make raita). Now-a-days electrical beaters also available in the market.



### 11.4.5. Gas stove

Now-a-days uasage of gas-stove had increased. The gas in it is liquified petroleum gas, supplied by the certified petroleum companies in prescribed cylinders. These LPG cylinders are connected to stove with a regulator and a rubber pipe. Gas stoves having 1-4 burners according to the model. Each burner head have a number of small holes around it, to provide air for burning. The regulator valve present on the top of the cylinder allows the gas to move from the cylinder to the burner.



#### *Precautions while using gas stove :*

- Keep all parts of the stove and clogged pores of the burner must be cleaned regularly.
- Use the small burner or cook on sim when need less heat.
- Check the rubber pipe which connects cylinder and burner regularly to avoid gas leakage.
- Turn off the cyliner knob / regulator after finishing cooking and at night time.

### 11.4.6. Solar cooker

Solar cooker utilizes the solar energy. It is a square metal box with a mirror fixed on the inner side and can be used for boiling, baking and roasting. By keeping the lid open at certain angle, this mirror is used to focus sun rays on the good kept in the round containers placed in the box. Community solar cookers are developed to cook meals in large scale. The Govt. of India has giving some subsidy on solar equipment. Keep the solar panel carefully, which receives the solar energy. So, we can cook food free of cost. The solar cooker also keeps the food warm for long time.



### 11.4.7. Grammen sheetal

The Grammen sheetal consists of a small cupboard made of wire mesh. This is kept covered with a jute cloth on all sides except the front. The ends of jute cloth dip into bowls of water and hence remain wet constantly.

It works on the principle of evaporation. The water from the wet jute cloth keeps evaporating. This evaporation produces cooling. This keeps temperature low inside the wire mesh cup than the outside temperature. Hence the food placed inside this home made refrigerator does not spoil easily.



Not only these, but many household equipments are available in the modern times for those who are running out of time. Ex: Automatic pan stirrer (which stirs the food in the pan), strainer (strains the food materials), egg cooker (for tube shaped omeletts), non-stick pan (because of the inside teflon coating, it does not allow food to stick to the pan while

cooking), iron grill pan (to grill the food material), cob-corn stripper, batter mixer, sandwich maker, garlic chopper, pizza pedler, chrinle cutter (to cut the vegetables in designs-carving), spill stopper (stops the spilling of food from vessels while cooking), automatic coffee maker etc.

#### *Check Your Progress...*

- 1) Write about the types and uses of beaters.
- 2) Write about the non-electrical household equipment used in the kitchen.

### Key Points

- House hold equipment is a device, which makes the job better and with ease to a home maker.
- Household equipment can be seleted on the basis of cost, quality, design, material used and the finishing etc.
- Household equipment can be purchased on the basis of requirement. Necessary precautions while using household equipment gives safety and save our time, money and energy. It enhances the efficiency of equipment also.
- Automatic iron box is safe to use than non-automatic.
- The toaster is a kind of equipment used to toast bread in order to make it crisp.

- The mixer is used to grind dry and wet food materials.
- A beater is used to beat and emulsify food.
- Peeler is used to scrape vegetables and fruits and grater is used to grate food.
- Safety valve is on lid top and gasket inside the lid are present in a cooker to send the pressure outside.
- Teflon coating is present inside the nonstick pans, which does not allow food to stick to the pan.
- Use three pin plug for the electrical household equipment and follow the instructions given with the equipment.
- Do not touch the electrical equipment with wet hand or feet.
- Low voltage bulbs can be used in the toilets and washrooms to save electric energy.
- Turn off the cylinder knob at night and after finishing cooking.

### Practice for learning outcomes

- 1) State the points to be considered during the selection of equipment.
- 2) What are the precautions to be followed to use equipment safely?
- 3) What is household equipment? Explain the types with examples.
- 4) Draw any one electrical household equipment and write about it.
- 5) What are the glass items used in the home? What precautions should be taken while using glass items?
- 6) Explain different parts of a computer.
- 7) Write two similarities and two differences between peeler and grater?
- 8) Draw any one non-electrical household equipment and write about its uses.
- 9) Choose the wrong one. ( )
  - a) Solar cooker receives energy from sun to cook food
  - b) Equipment makes the job better and with ease and save time and energy
  - c) For pressure and flame we pump the air in gas stove
  - d) Teflon coating is present inside the non-stick pan
- 10) Choose the right one. ( )
  - a) Electricity is required for non-electrical appliances
  - b) Grameena sheethal works with solar energy
  - c) Water heater requires electricity
  - d) We have to supply air to the gas stove, while cooking



# Health

My friend is often sick. Because of that he is not able to attend school properly. Irritated by frequent illnesses, anger increased in him. Not able to attend the classes, not even able to finish his homework. Because of all this, he is unable to read properly. Even unable to mingle with anyone. There are many reasons for his poor health. Not eating properly, lack of proper exercise, unhygienic environment, etc. had lead to poor health.

- How do we make sure a person is healthy?
- What is the difference between a disease-free state and a diseased state?
- What is the relationship between being sick and being irritation?
- What to do, to stay healthy?
- What are the factors that affect health?

## Learning Outcomes

### The learner....

- ◆ Describes physical, mental, and social health.
- ◆ Identifies the things that need to be done to stay healthy.
- ◆ Applies the knowledge of health in their daily lives.
- ◆ Recognize the misfortunes caused by addictions such as drugs.

## 12.1 Health

It is said to be healthy means without diseases. Does that means "healthy" is just without diseases?

According to the World Health Organization, "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".

We may know a person's complete health with physical, psychological and social aspects.

### 12.1.1 Physical health

When we see a person we can tell that he is sick. That means, what are the characteristics of the healthy person?

Person with physical health -

- are powerful and dynamic. Do not get tired quickly while working normally.
- Weight appropriate for age and height.
- Have radiant, clean skin.
- Have enough appetite and sleep.
- Stay active and respond quickly.

### 12.1.2 Social health

Although a person looks physically healthy, he / she cannot be said to be perfectly healthy. That person's social health depends on how he behaves with those around him in the society.

Person with social health -

- Mixes nicely with the people around.
- Have good behavior.
- Helps others.
- Will be confident and friendly with everyone.

### 12.1.3 Mental health

A person despite having good physical health, having social health or socially blended nicely with everyone one, he / she cannot be said to be perfectly healthy. Mentally also, should be healthy.

Person with mental health -

- Have control over emotions, such as anger and joy.
- Believes in himself, in his own powers.
- Will be free from unnecessary pressures, worries and sufferings and sorrows.
- Responds appropriately to the needs of others.

These physical, social and mental health are the three aspects of health. A person is considered to be perfectly healthy, if he is healthy in all the three aspects.

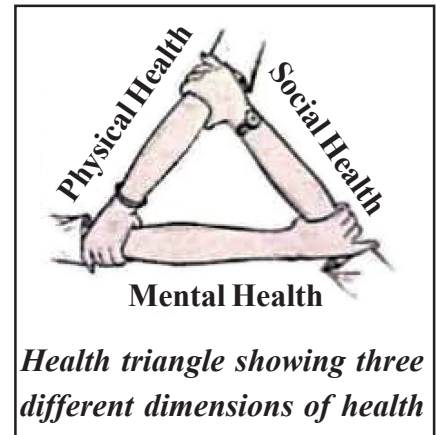
What is the relationship between these three elements?



A person who is calm during normal times, but gets irritated when that person is suffering from fever or any illness.

Why does this happen ?

If a person is physically ill, he loses energy and is unable to do what he wants to do. Therefore affecting his mental health, become frustrated and do things like shouting. This can lead to social illness that damages his relationships with others. Despite being physically healthy, those who are always sad, may notice change in their blood pressure, and ulcers in their stomachs. This is because physical, mental, social health are interrelated. So, illness in any of these aspects has an effect on other factors. Hence when you are healthy in these three aspects, then only said to be perfectly healthy.



### *Check Your Progress...*

- 1) How can a person be determined to be socially healthy?
- 2) What must we do to be perfectly healthy?
- 3) What factors affect our health?

## **12.2 Factors affecting health**

Our health depends on our daily life habits, food intake, our clothing and other habits etc.. A healthy lifestyle keeps us healthy. Some factors that affect our health:

- 1) Personal hygiene
- 2) Exercise
- 3) Rest and sleep
- 4) Sitting and standing postures
- 5) Cleanliness of the house
- 6) Eating habits
- 7) Climate - clothing
- 8) Precautions to be taken while playing games and working
- 9) Effect of smoking, alcohol and other drugs

**Body fat is calculated as BMI (Body Mass Index) based on body height and weight.**

## 12.2.1 Personal hygiene

Personal hygiene means keeping themselves clean. Many diseases do not come close because of personally being clean. To maintain personal hygiene cleaning teeth, bathing etc. should be done daily. All these keep us personally clean and healthy.

**Use of toilets :** We get up early in the morning and we will complete our daily chores. Care should be taken to avoid accumulation of undigested substances in the body. Hence we have to make the habit of a regular daily routine. Thus the dietary movements take place regularly and the wastes in the body come out.

Use the toilet and avoid defecating outdoors. Footwear should be used when using the toilet. Clean water and a mug should be used. Hands should be washed with soap after defecation.

**Hand washing :** Wash hands with soap before and after eating and after using toilets. When eaten with dirty hands, the germs enter our body and cause illness. Spreading of most diseases like Covid can be stopped by cleaning hands frequently.

**Bathing :** Why do we take bath every day? What happens if we do not take bath? Dust and dirt in the air will accumulate on the skin. If not bathed well, we are prone to many diseases. Bathing means just not pouring water on the body. Rubbing the body cleanly with soap. The sweat pores should be opened. Proper bathing not only gives physical health but also provide mental pleasure.

**Brushing teeth :** Why does bad smell come from the mouth?

Bad breath come from mouth by not cleaning your teeth and mouth properly. The pieces of food may stick to the gums, or in the gaps of teeth. Bacteria in the mouth makes these foods to decompose. Hence gums and teeth can be damaged, as well as bad breath.

Therefore teeth should be cleaned regularly. Using a delicate brush, paste or powder teeth should be thoroughly cleaned. After eating food immediately rinse your mouth well with clean fresh water. To make teeth healthy and strong you have to drink milk.

**Hair, eyes, nail cleaning :**

What happens if you do not take head bath for a week?

The hair needs to be cleaned regularly. If not, the whole hair becomes dirty and hair glow will be depleted. Lice growth is also possible. So clean your hair every day, and comb it.

**Diarrhea and pneumonia alone account for 20% deaths of children under 5 years of age. Washing hands with soap can stop most of these deaths.**

What happens if the eyes are not cleaned?

Dust gets in the corner of the eye and sticks to the eyes. There is a possibility of eye diseases. Therefore rinse eyes regularly with cool water. If any dust or dirt gets into the eyes, rinse with clean water, without rubbing the eyes, and consult a doctor if necessary.

Dirt gets into the nails. If we do not clean the dirt properly, there is a possibility of various diseases. The nails should not grow longer and should be cut from time to time. The nails should be thoroughly cleaned to prevent accumulation of dirt.

### *Check Your Progress...*

- 1) What are the factors that affect health?
- 2) Why should we practice personal hygiene?

## **12.2.2 Exercise**

You may be playing longer than usual on a holiday. How do you feel on that day. You may feel pain in legs and arms and the whole body feels tired!

Why do the legs, arms feel pain?

Usually sports persons play all day. Do they feel the same way?

Usually the muscles that we do not use or do not work much, feel pain when we use them more. Also we get tired. But sports persons and the people who do heavy work do not get tired of such things quickly. Because their muscles get acquainted to do this these kind of things. If we also exercise regularly we too don't get tired quickly. Exercise is an bodily activity that enhances or maintains physical fitness and overall health and wellness. Exercise stimulates us physically and mentally and prepares us to do things. Reduces body fat and keeps body activities functioning properly and makes us powerful. Exercise is not just about lifting weights. Playing our favorite game regularly, swimming, yoga, walking and running are also called as exercise.

Do not do too much or too little exercise. Exercise should be based on body weight, height, fat percentage and lifestyle. Sick and weak people should not exercise too much, that makes them even more vulnerable.

## **12.2.3 Rest and sleep**

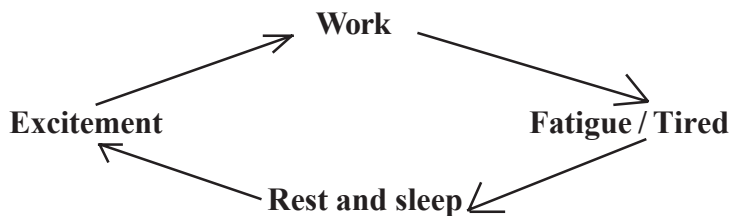
How does it feel after playing for a long time or heavy work out?

Disturbance of night time sleep can make you tired all day long. Why?

You want to relax after doing any work or playing games. Resting for a while can refresh you again. Cells in the body release energy using oxygen. The body uses this energy. The waste products formed in the process are excreted from the body. When we work hard, these waste

products are formed quickly. Hence the muscles do not function properly and feel tired. This is called 'fatigue'. 'Fatigue' means the inability of the body to function or 'decrease' in body's working capacity. If the body is given rest for a while these wastes will be sent out and the muscles are reactivated.

Sleep is a state of complete relaxation both physically and mentally. Almost completely relaxing of muscle and mind gives the body and mind a new energy. Everyone need enough sleep.



#### *Check Your Progress...*

- 1) Why should we exercise daily?
- 2) What happens if we do not get proper rest?

### **12.2.4 Standing and sitting posture**

Bend the waist and walk for some distance. How did you feel? Observe the persons who walk with bending their back. Observe those who stand upright and walk. Which one is good to see?

We feel uncomfortable due to bending while walking. Compared to the person who walks with bending, the person who walks straight looks good. While walking, standing and climbing the stairs we should be straight. Whether sitting bent over, playing games on the phone, sitting in front of a computer for long periods of time, walking for long distances makes extra pressure on the chest and stomach which causes lower back pain and spondylitis. While doing other activities also the right posture is needed.

### **12.2.5 Clean home environment**

Clean and healthy environments have a huge impact on our health. Many pathogens, such as bacteria and viruses thrive in the unclean environment. Our body as well as our surroundings should also be clean. We need to keep our house clean, even if it is small. Be careful not to get dust and dirt. Sewage drainage should be clean. Growing plants at home and surroundings helps in physical health and mental peace.

### **12.2.6 Our eating habits**

We know that we get energy from the food that we eat. But, when we have fever or any other infection with disease, doctors advise to take more fruits and vegetables. What is the relationship between vegetables, fruits and the disease?

Our body get all the nutrients from the food that we eat. So, we need to eat a balanced diet with proper nutrients to stay healthy. But also we have to improve our eating habits. Avoid unwanted snacks between meals. While eating, be calm, chew food well and eat slowly.

### *Check Your Progress...*

- 1) What is the relation between standing posture and our health?
- 2) Why should we keep our home clean?

## **12.2.7 Climate - clothes**

What kind of clothes do we wear in winter?

Why do we not wear the same clothes during the summer?

In winter we wear woolen clothes for protection from the cold. We wear cotton dresses in the summer. We dress according to changes in the weather. In the same way for occasions we wear brightly colored dresses. But, we do not wear such clothes at our daily work. Means we wear different types of clothes for different occasions.

As the time changes, new fashions are coming. We have to change as per new fashions, unless we may feel inferiority. No matter what kind of clothing we have, depending on the occasion and the climate, if we wear clean ironed clothes our body and mind will feel comfortable.

## **12.2.8 Protection at workplace and while playing games**

If the surroundings at our home are bumpy and the stairs-floor is slippery we may get hurt. We may fall ill. You may get hurt while playing in the bumpy, and stony places. Similarly if the surroundings of our workplace are not safe, the chances of getting hurt are high. Therefore, the chances of our health deterioration are high.

## **12.2.9 Effect of smoking, alcohol and narcotics**

Smoking is an addiction. Nicotine and Carbon monoxide in beedis and cigarettes can cause damage to all parts of the body. Due to smoking, the chances of getting mouth and lung cancers are very high. It can lead to heart disease and stroke.

Alcohol is also a bad habit. It starts as fun and becomes a habit. It slows down brain function even when it seems stimulated by alcohol. Decision-making power decreases and responses are delayed. Losing self-control leads to suffer with risks. Alcohol slows down the function of parts of the body and suffers from many diseases. Alcohol causes not only loss of physical health but also social health. So everyone should give up alcohol.

Some types of narcotics are used to prevent disease. But the small dosages under supervision of doctors are useful for prophylaxis. But if taken in high doses, becomes addicted to it. Eventually it could cause harm to the survivors and cause death.

### *Check Your Progress...*

- 1) Why should we wear clothes according to the seasons?
- 2) Why should not play games in rough places?
- 3) What are the risks of alcoholism?

## **Key Points**

- Health is about being perfect physically, mentally, and socially. All of these are interrelated.
- Being active, dynamic and responding quickly, indicates a person's physical health status.
- Having good manners with those around him in the community and having good relationships with them is 'social health'.
- Mental health is about having self-confidence and having control over emotions.
- Health is affected by various factors. They are hygiene, relaxation, working posture, diet, habits, etc.
- If our surroundings are clean, working in good posture, having good eating habits we will get physical health. So that mental health, Social health are formed.

## **Practice for learning outcomes**

- 1) What is social health? How can a person be socially healthy?
- 2) If we want good health, how should be our eating habits?
- 3) How can a person be addicted to drugs?
- 4) What happens if you do not wear clothes according to the weather?
- 5) What are the three characters of health? How do they relate to each other?
- 6) We need to eat ..... to stay healthy. ( )  
A) Fries                      B) Chocolates                      C) Fruits                      D) Fast food
- 7) The three health factors are ... ( )  
A) Exercise, sleep, physical health                      B) Physical, eating habits, hygiene  
C) Physical, mental, social                      D) Physical, mental, working posture

# Health Emergencies



We see different kinds of accidents every day. Sometimes we even experience the same. We might have observed people calling for an ambulance (108) for emergency care when someone met with an accident. We perform emergency care for the minor accidents that occur at our home too. For example when we had burns, we keep the affected area under tap water, we do not act the same way if we experience electric shock. Similarly different emergency care is required for different accidents.

- What to be done after a minor or a major accident?
- Why treatment should be done immediately after an accident?
- Do all accidents require the same emergency care?

## Learning Outcomes

### The learner....

- ◆ Identifies the need of an emergency.
- ◆ Explains the importance of first aid.
- ◆ Identifies the items that should be kept in the first aid kit.
- ◆ Perform first aid in daily life, if needed.

## 13.1 Health emergencies - First aid

First aid is the immediate care that is provided when a person is injured or ill, until the medical treatment is available. Timely intervention and immediate care can prevent further deterioration of the victim and even save the life. It can be of great help in such situations if we have the basic knowledge of first aid.

However, medical help should be sought after first aid.

- What are the common accidents that occur at our home?
- What kind of first aid is provided in such condition?



## 13.2 ELECTRIC SHOCK

We use different electric appliances in our day to day life. Improper usage of such appliances can lead to electric shocks, some times even a person is likely to die. When a person experiences electric shock depends on the severity, the following first aid is useful.

- Turn off the source of electricity, if possible.
- If not move the person away from the source by using dry, non-conducting object made of wood or plastic.
- Lay down the victim and raise the legs
- Try to cover a blanket to prevent the injured person from becoming chilled
- Keep the person still and don't move him/her unless necessary.
- Call the doctor immediately.

### *Check Your Progress...*

- 1) What is first aid?
- 2) What type objects need to be used to move the victim away from the source of electricity?

## 13.3 SEVERE BLEEDING

We might use sharp objects to cut vegetables or for other household chores. Accidentally we may experience a cut and start bleeding. What first aid measures you follow when you experienced bleeding from a cut?

- To stop bleeding, press directly on the wound with the thumb.
- Keep sterilized dressing or clean hand kerchief and tightly hold the injured area.
- Make the injured person lie down and elevate the bleeding part to minimize flow of blood.
- Call the doctor.

### *Check Your Progress...*

- 1) How a victim experiencing bleeding allowed to lie down?
- 2) What immediate measure one need to follow to stop the bleeding from cuts?

## 13.4 NOSE BLEEDING

Have you ever experienced bleeding from your nose?

Injury to the nose, going out in hot sun frequently, hot air and low-humidity climates and many more may lead to nose bleeding.

What do you do if nose bleeds?

- Make the person sit up and lean forward, to prevent swallowing blood.
- Apply pressure to the soft part of nose, just above the nostrils with the fingers for at least 10 min.
- Apply ice on the bridge of the nose to reduce swelling (if any) and bleeding.
- Consult a doctor if bleeding does not stop

## 13.5 BURNS

We might have experienced burns by touching hot objects in our kitchen. Blisters form when hot substances like oil or water fall on the skin accidentally.

What do you do in such cases?

The first aid for burns depends upon the severity of the injury.

- Immediately immerse the injured area in cool tap water. Do this for about 10 minutes or until the pain subsides.
- Blot the area and apply a dry sterile dressing.
- In case of severe burns cover the injured part with clean towel/cloth to prevent infections and immediately rush to the hospital.
- Chemical burns caused by acids or alkalis should be flushed with large amounts of water till the pain subsides.
- Do not apply butter or oil on top of burn, it will retain the heat of the burn and slows down the healing process.

### *Check Your Progress...*

- 1) What to be applied on burns?
- 2) Nose bleeding is commonly experienced in which season?

## 13.6 ANIMAL BITES AND STINGS

Dog bites and snake bites are common. Poisonous snake bite may even kill a person. Honeybee, scorpion stings causes severe pain, even some times be fatal.

### 13.6.1 Snake bite

All snakes are not poisonous. If two puncture wounds are seen on victims body with inflammation and pain, then it is identified as a poisonous snake bite.

#### **First aid :**

- Immobilize the bitten area. Which may prevent the spread of poison into the body.
- Cover the bite loosely with a clean, dry bandage.
- Seek medical help immediately.

### 13.6.2 Dog bite

Dog bites are very dangerous, if it is a mad dog.

**First aid :**

- Wash the bite area with soap and water.
- Consult the doctor and take antirabies injection.

### 13.6.3 Insect stings

Honeybees and wasps inject toxins by their sting. Area of the sting becomes reddish and shows inflammation.

**First aid :**

- Remove the sting carefully with a sterilised needle.
- Apply baking soda paste for honey bee bite and vinegar for wasp bite area.
- Consult the doctor.

*Check Your Progress...*

- 1) How can we make out poisonous and non-poisonous snake bite?
- 2) What type of first aid is given for insect bite?

## 13.7 DEHYDRATION

Excessive loss of fluids from the body than intake leads to dehydration. Some common signs and symptoms of dehydration include.

- Dry mouth
- Tiredness / fatigue
- Decrease in urination
- Muscle cramping
- Dizziness
- Dehydration may be caused by working in extreme heat, doing excessive physical activity and in-ability to drink water, frequent vomiting and diarrhea.

**First aid :**

- The person experiencing dehydration should be made to drink small quantities of oral rehydration solution (ORS) at frequent intervals.
- ORS packets are available free of cost at all government health centers.
- ORS can be prepared by adding one tea spoon of sugar and a pinch of salt in a glass of (about 200 ml) water.
- Consult doctor if needed.

## 13.8 FRACTURES AND DISLOCATIONS

Fracture is a break in the bone and dislocation is when bone end moves out of its normal position. Signs of fracture and dislocation include pain, tenderness, swelling around the injury and immobility of the affected body part.

### First aid :

- Immobilize the injured area, do not rub or massage the affected area.
- Apply a splint on the affected area.
- Splint is a support which can be made by padding a stick/scale with a soft cloth.
- Splint is then placed below the injured area and tightly tied above and below the fracture.
- Ask for medical help immediately

### *Check Your Progress...*

- 1) What is dehydration?
- 2) What precautions are to be taken for bone fracture?

## 13.9 FIRST AID KIT

A box containing essentials needed to give immediate medical help in an emergency is the First aid Kit. Some essential items need to be in the kit are -

- A small book that outlines the procedures for doing first aid.
- Bandage : Roller bandages and adhesive bandages.
- Sterile cotton / Gauze pads to clean and cover the wounds.
- Anti-septic lotion, potassium permanganate, baking soda, iodine tincture, boric acid etc for cleaning.
- A small glass.
- Small scissors / small knife.
- Torch or candle.
- Thermometer.

If first aid kit and other essentials are not available, use the available ones. Remove expired things and add new ones.

### Key Points

- The immediate medical help to save a persons life, who is at risk due to an accident or illness is called health emergency.
- Treatment given to a sick or injured person until medical treatment is available is called First aid.

- Move the person away from the source of electric shock by using dry, non-conducting object made of wood or plastic.
- To stop bleeding press directly on the wound with the thumb.
- Nose bleeds due to hot and low humid climates or by any injury to the nose.
- Do not apply butter or oil on the burn. Immediately immerse the injured area in cool tap water.
- All snakes are not poisonous, if two puncture wounds are found at the area of bite then it can be a poisonous snake bite.
- Do not prick any blister formed due to burns.
- Excessive loss of fluids from the body leads to dehydration.
- A first aid kit is a collection of supplies and equipment that is used to give medical treatment.

### Practice for learning outcomes

- 1) What is first aid? Why and when first aid is to be done?
- 2) Why butter or oil should not be applied on the burns and blisters?
- 3) Why medical help should be sought even after first aid?
- 4) Set up a first aid kit at your home. List out the first aid essentials you placed in it.
- 5) Write the first aid for dog's bite?
- 6) What safety measures we need to follow to move the victim from the source of electric shock?
- 7) What to apply to the affected part of honeybee bite ( )  
 A) Soda                      B) Lemon juice                      C) Vinegar                      D) Curd
- 8) The cause of dehydration is ( )  
 A) cold air    B) hot conditions  
 C) drinking more water    D) consuming more salt
- 9) This can be used to bind a broken bone. ( )  
 A) wooden stick                      B) wrapped magazines                      C) umbrella                      D) all
- 10) If bleeding occurs from a cut ( )  
 A) wash under tap water    B) press the area tightly with thumb  
 C) drink plenty of water    D) bleeding should be left

# Communicable Diseases



Ramu's father had high fever. He took him to the hospital. The doctor suggested to go for some kind of tests. After seeing the reports, doctor said Ramu's father was diagnosed with malaria. He asked Ramu if anyone at home or neighbourhood had fever? Are the surroundings hygienic? Any stagnant water near the house? Are mosquitoes more in their area?

Later he advised to keep the surroundings clean and use mosquito nets, repellents if necessary.

- Why should we use mosquito nets, repellents?
- What happens if a mosquito bites?
- Why should we all wear masks in situations like covid?
- What are the causes of diseases?
- What can be done to prevent diseases?

## Learning Outcomes

### The learner...

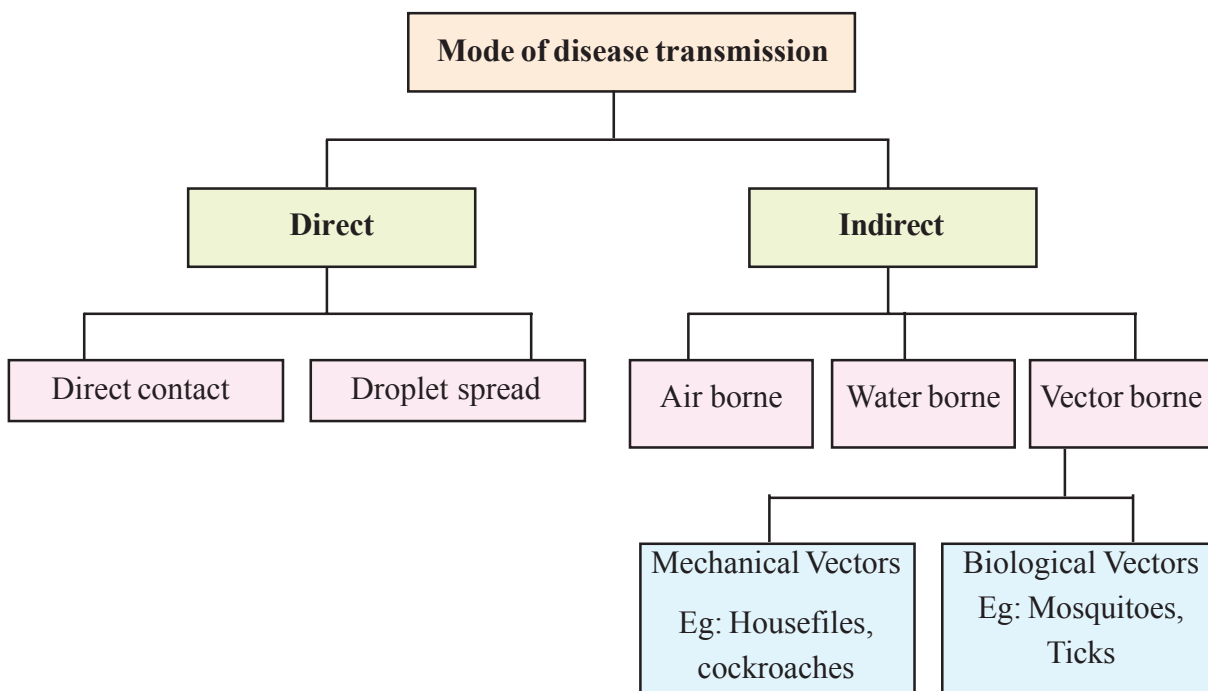
- ◆ Defines and gives examples of communicable diseases.
- ◆ Explains the causes, symptoms and preventive measures of some infectious diseases.
- ◆ Takes appropriate precautions in daily life to prevent infectious diseases.
- ◆ Identifies the differences between communicable and non-communicable diseases.
- ◆ Can protect themselves from diseases by changing their life style.

## 14.1 Communicable diseases

Communicable diseases spread from one person to another by the entry of pathogens (disease causing organisms). Pathogens enter our body through various means and then multiply there by causing diseases.

### 14.1.1 Mode of disease transmission

The disease causing organisms can be transferred from one person to another by direct or indirect contact. Diseases can be spread directly by touching an infected person or by inhaling infected droplets. It can also be spread indirectly by consuming contaminated food and water. Mosquitoes and other insects also play a major role in spreading infectious diseases.



- What are symptoms of an infection?
- What treatment should be taken if infected?



The disease can be identified based on the symptoms, but the diagnosis should be made only after undergoing the necessary tests as per the medical advice.


**Table : Some common communicable diseases**

S.No.	Name of disease, Its causative agent & mode of transmission	Symptoms	Prevention
1	<p><b>Amoebiasis</b> caused by : <i>Entamoeba histolytica</i> (a protozoan parasite infecting large intestine)</p> <p><b>Transmission:</b></p> <ul style="list-style-type: none"> <li>• by air, by house flies and cockroaches that may</li> </ul>	Abdominal pain, constipation, cramps, stools with mucous and blood.	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>• Wash hands before eating and after defecation.</li> <li>• Proper sanitary disposal of faecal matter.</li> <li>• Cover the food items with lids.</li> </ul>



S.No.	Name of disease, Its causative agent & mode of transmission	Symptoms	Prevention
	<p>carry the pathogen from the infected person's stool to food / water and there by contaminate it.</p>		<ul style="list-style-type: none"> <li>• Personal Hygiene.</li> <li>• Wash fruits and vegetables before eating.</li> </ul>
2	<p><b>Ascariasis</b> caused by : <i>Ascaris lumbricoides</i> (round worm). That resides in the small intestine.</p> <p><b>Transmission:</b></p> <ul style="list-style-type: none"> <li>• Eggs of the parasite come out along with the faeces of the infected person and contaminate soil, water, plants etc.</li> </ul>	<p>Abdominal pain, internal bleeding, impaired digestion, colic pain and blockage of intestinal passage.</p> <p>In children, may lead to retarded physical and mental development.</p> <div> </div> <p style="text-align: center;"><i>Male and female Asaris</i></p>	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>• Same as amoebiasis.</li> <li>• Personal hygiene.</li> <li>• Wash hands properly.</li> </ul>
3	<p><b>Tuberculosis (T.B.)</b> caused by bacteria <i>Mycobacterium tuberculosis</i>.</p> <p><b>Transmission:</b> the bacteria enters into the body.</p> <ul style="list-style-type: none"> <li>• by inhaling "droplets of patients by cough and sneeze.</li> </ul>	<p>Persistent low grade fever and cough.</p> <p>Blood in sputum.</p> <p>Weight loss, chest pain, excessive fatigue, poor appetite.</p> <div> </div>	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>• BCG vaccine at birth.</li> <li>• Patient suffering from TB should be kept isolated and given proper medication.</li> <li>• Clothes and utensils used by TB patient should be regularly disinfected.</li> </ul>

S.No.	Name of disease, Its causative agent & mode of transmission	Symptoms	Prevention
4	<p><b>Malaria caused by :</b> <i>Plasmodium</i>. It complete its life cycle in two hosts, human and mosquito.</p> <p><b>Transmission:</b></p> <ul style="list-style-type: none"> <li>By the bite of an infected female <i>Anopheles</i> mosquito. Malarial parasites multiply within the red blood corpuscles (RBCs) of human blood and increase to enormous numbers. So, the RBCs rupture and the toxin produced by the parasite is released in the blood.</li> </ul>	<ul style="list-style-type: none"> <li>Chill and high fever which occurs at regular intervals accompanied by headache and nausea.</li> <li>Fever may last for 6-10 hrs.</li> </ul>  <p><i>Bite of infected mosquito</i></p>	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>Keep surroundings clean.</li> <li>Do not allow water to stagnate.</li> <li>Spray kerosene or raise Gambusia fish in stagnant water.</li> <li>Use mosquito nets, repellents.</li> </ul>
5	<p><b>Filariasis / Elephantiasis is caused by :</b> <i>Wuchereria bancrofti</i></p> <p><b>Transmission:</b></p> <ul style="list-style-type: none"> <li>Bite of the female <i>Culex</i> mosquito.</li> </ul>	<ul style="list-style-type: none"> <li>Fever in the initial days, the parasites reside in the lymph vessels and cause chronic inflammation of the organs, specially in lower limbs resulting in enormous swelling of the limbs.</li> </ul>	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>Keep surroundings clean.</li> <li>Do not allow water to stagnate.</li> <li>Spray kerosene or raise Gambusia fish in stagnant water.</li> <li>Use mosquito nets, repellents.</li> </ul> 
6	<p><b>Dengue fever</b> (break bone fever) caused by a virus.</p> <p><b>Transmission:</b></p> <ul style="list-style-type: none"> <li>by the bite of a female <i>Aedes</i> mosquito.</li> </ul>	<ul style="list-style-type: none"> <li>Abrupt high fever.</li> <li>Severe headache and joint pains, loss of appetite, rashes over chest and upper limbs.</li> </ul>	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>Keep surroundings clean.</li> <li>Do not allow water to stagnate.</li> <li>Spray kerosene or raise Gambusia fish in stagnant water.</li> <li>Use mosquito nets, repellents.</li> </ul>

S.No.	Name of disease, Its causative agent & mode of transmission	Symptoms	Prevention
7	<p><b>Influenza</b> (flu) is a viral infection of the respiratory tract.</p> <p><b>Transmission:</b></p> <ul style="list-style-type: none"> <li>Through direct or indirect contact inhaling infected droplets.</li> </ul>	<p>Fever (100°F to 103°F), sore throat, cough, sneezing, running nose, headache, body pain, fatigue.</p>  <p><i>Droplet Infection</i></p>	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>The infected person should cover their mouth and nose when they cough or sneeze.</li> <li>The infected person should avoid public places.</li> </ul>
8	<p><b>Ringworm</b> - Is a fungal infection of the skin, caused by fungus - Microsporum, epidermophyton.</p> <p><b>Transmission:</b></p> <ul style="list-style-type: none"> <li>By direct contact with infected person.</li> <li>From an animal that has ringworm.</li> <li>By walking barefoot in damp areas.</li> </ul>	<ul style="list-style-type: none"> <li>Itchy skin.</li> <li>Ring shaped rashes.</li> <li>Red scaly cracked skin.</li> </ul>	<p><b>Prevention :</b></p> <ul style="list-style-type: none"> <li>Keep skin clean &amp; dry.</li> <li>Do not walk barefoot in damp areas.</li> <li>Do not share clothing, towel with some one who is infected.</li> <li>Wash hand with soap and water after playing with pets.</li> </ul>

### *Check Your Progress...*

- 1) What are the factors that contribute to the spread of communicable diseases?
- 2) How Ascariasis disease spreads?
  - Are all diseases caused by pathogens?
  - What are the causes of diseases?

## 14.2 Non communicable diseases

In this fast-paced life many of us live today, there is a lot of conflict, unhealthy competition and pressure. In this kind of life style people are likely to neglect their health and suffer from ailments like high blood pressure, increased blood sugar (diabetes) cardio-vascular disease, cancer, obesity and many others. Although some of these diseases have a genetic predisposition,

**1 million deaths can be ceased world wide, if hands are washed cleanly.**

they have started affecting younger age groups due to indiscipline life style. Thereby such diseases are caused not by pathogens but genetically or by unhealthy life style.

"Non infectious health condition that cannot be spread from one person to another is termed as Non communicable disease."

### 14.2.1 Causes :

Diabetic cases are on the rise in India, the main reasons for which are -

- 1) Sedentary lifestyle : Insufficient or no physical activity.
- 2) Eating habits : Eating available fast food that is high in fat and sugars. Eating at improper time.
- 3) Family history of heart disease and diabetes also predispose people to these diseases.
- 4) Stress, anxiety : People who are stressed at work, focussing on unnecessary things gets frustrated and angry easily. Severe anxiety and stress can depress the immune system and increase the chances of falling ill. Therefore we need to learn how to handle stress in life.

#### *Check your progress...*

- 1) Give examples for non-communicable diseases.
- 2) Mention the practices to cut down the stress.

### Key Points

- Communicable diseases spread from one person to another by the entry of pathogens.
- Diseases are transmitted by direct contact, by air or by consuming contaminated food and water.
- By following personal hygiene, washing hands regularly, use of mosquito nets can prevent the spread of communicable diseases.
- The diseases that do not be spread from one person to another are known as non-communicable diseases.
- Family history or sedentary lifestyle leads to non-communicable disease.
- Having healthy food habits, regular exercise, managing stress can reduce the risk of non communicable diseases.

### Practice for learning outcomes

- 1) What are communicable diseases? Give example.
- 2) Mention the preventive measures to avoid malaria fever?
- 3) What are non-communicable diseases? Mention the causes of non-communicable diseases?
- 4) Match the following :

i. Malaria	(     )	a. muscle, joint pains
ii. Ring worm	(     )	b. running nose
iii. Dengue	(     )	c. fever with chills
iv. Flu	(     )	d. rign shaped rashes



# Immunity

We have learnt that communicable diseases are transmitted from one person to another through various modes. Diseases like malaria, cholera when infects few people in an area are more likely to spread and infect many people in that area. Likewise, If one person catches cold at home there is a chance that everyone else will get it. Thereby it is essential to stay away from infected people and maintain hygiene. In some people the diseases may be cured in a short period of time and in others it may not. All diseases necessarily do not infect everyone.

- What could be the reason for a communicable disease to infect only few at home?
- What is the cause of infection and reason for the cure?
- What could be done to prevent diseases?
- Why children need to be vaccinated?

## Learning Outcomes

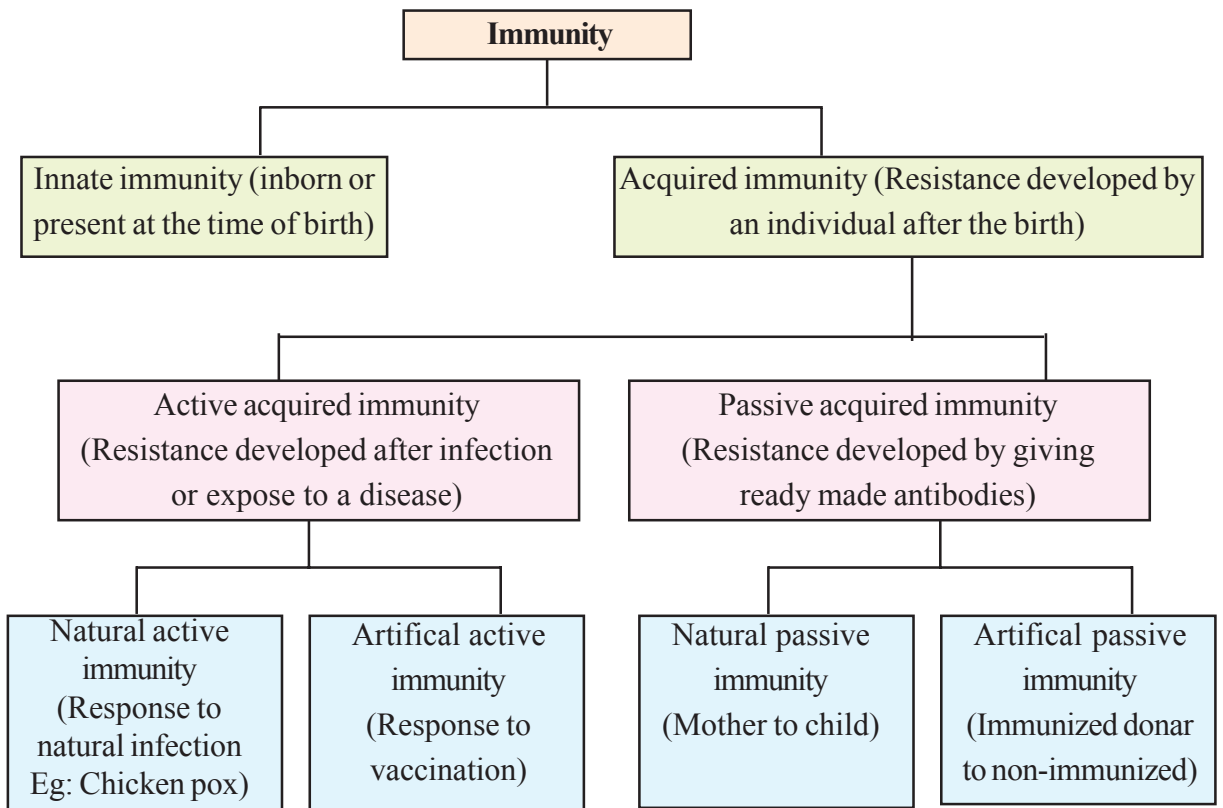
### The learner...

- ◆ Explains about immunity.
- ◆ Distinguishes different types of immunity.
- ◆ Applies the knowledge of immunity in day to day life.
- ◆ Express awareness about National immunization programme.

## 15.1 Immunity

We are exposed to large number of disease causing agents every day, although we wear masks and take other precautions. We get infected with diseases, when our immune system is weakend. Our body is able to defend against most of the disease causing organisms. The overall ability of the body to protect itself against disease causing agents is immunity and this complex system is called immune system. Vaccines are used to boost the immune system to prevent certain diseases.

## 15.1.1 Types of immunity



Based on the nature of response, immunity is mainly of two types, namely

- i) Innate immunity
- ii) Acquired immunity

**i) Innate immunity :** It is present from the time of birth. Skin and mucous membranes prevent entry of foreign agents into our the body. Hydrochloric acid in the stomach, lysozyme enzyme secreted in the mouth, tears, sweat kill the germs. White Blood Cells (WBC) engulf foreign particles and destroy them.

**ii) Acquired immunity :** It develops during one's life time by producing antibodies in response to foreign bodies termed as antigens. Each antigen is recognised by a specific antibody. Antibodies are the proteins produced by lymphocytes (a type of WBC) against specific antigen. Antibodies remember and recognize the infective agents that have once attacked the body and kill them when they enter the body again. This is called memory of the immune system. Based on this, vaccines for mumps and measles are made.

Acquired immunity is of two types (a) Active immunity (b) Passive immunity.

Active Immunity	Passive immunity
<ul style="list-style-type: none"> <li>• Resistance developed by an individual in response to natural infection - Natural active immunity.</li> </ul>	<ul style="list-style-type: none"> <li>• Resistance developed by an individual by transferring antibodies from mother to child - Natural passive immunity.</li> </ul>

Active Immunity	Passive immunity
<ul style="list-style-type: none"> <li>Resistance developed by an organism due to inoculation antigens (Vaccines) - Artificial active immunity.</li> </ul>	<ul style="list-style-type: none"> <li>Resistance developed by giving antibodies from an immunised donar to a non-immunised individual - Artificial passive immunity.</li> </ul>
<ul style="list-style-type: none"> <li>The response is slow.</li> </ul> Eg: BCG vaccine for tuberculosis.	<ul style="list-style-type: none"> <li>Provides immediate protection.</li> </ul> Eg: Mothers milk, Anti-tetanus serum

**Check Your Progress...**

- 1) What is immunity?
- 2) What happens if the immune system is weakened?

## 15.2. Primary Immunization

You are aware of various immunisation programme that are run by the government for the general public especially for the pregnant women, infants and children. Table below illustrates the primary immunization programme for a new born baby and their subsequent booster doses. Immunization is given free of cost at all government dispensaries and hospitals.

### National Immunization schedule in India for children up to the age of 24 months and pregnant women

Vaccine	Passive immunity				
	Birth	6 weeks	10 weeks	14 weeks	9-12 months
<b>Primary Vaccination</b>					
BCG against TB	✓				
Oral polio	✓	✓	✓	✓	
DPT against Diphteria, Pertussis, Tetanus		✓	✓	✓	
Measles					✓
<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 months after 1 <sup>st</sup> dose				
Booster	within 3 years				



Vaccines prescribed for infants can greatly enhance their immunity. The timing, sequence and frequency of the immunization should be followed as detailed in the chart above.

### 15.3 Pulse Polio Programme

You might have seen posters about "Pulse-Polio Abhiyaan" 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 dates, so polio can be eradicated and no child is ever crippled by this disease. For the convenience of the public Pulse polio abhiyaan is organized

#### Check Your Progress...

- 1) What are booster doses?
- 2) How is polio vaccine administered?

#### Key Points

- Our body's ability to fight disease is called Immunity. Though it is a natural phenomenon, immunity against certain diseases can be enhanced by administering vaccines.
- Skin, mucous membranes protect us by preventing the entry of pathogens.
- White blood cells in the blood destroys disease causing agents.
- Immunity is of two types (a) Innate immunity (b) Acquired Immunity.
- Various immunisation programmes are run by the government for infants and children.

#### Practice for learning outcomes

- 1) What is immunity? Explain.
- 2) Explain the types of immunity.
- 3) What are antibodies?
- 4) What is passive immunity?
- 5) Why vaccines should be taken?
- 6) Explain the memory of the immune system.
- 7) How do vaccines work?
- 8) Vaccines administered immediately after birth are ( )  
(i) BCG (ii) Polio  
A) (i) only B) (ii) only  
C) Both i & ii D) None of them
- 9) Immunity developed by BCG vaccine is ( )  
A) Artificial passive immunity  
B) Natural passive immunity  
C) Artificial active immunity  
D) Natural active immunity
- 10) Match the following :  
i. Colostrum ( ) a. Stomach  
ii. Antibodies ( ) b. Oral  
iii. Hydrochloric acid ( ) c. White blood cells  
iv. Polio ( ) d. Natural passive immunity



# Environment

You must have noticed over the years that the places where there used to be trees, farms, waterbodies, 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 the number of vehicles and unsafe disposal of waste.

Do you know all these cause a lot of health problems? 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.

## Learning Outcomes

### The learner....

- ◆ Explains about pollution and pollutants.
- ◆ Categorises pollution into different types based on its sources.
- ◆ Identifies effect of pollution on environment and health.
- ◆ Suggest measures for controlling different types of pollution.
- ◆ Adopt an eco friendly waste disposal plan in daily life.

## 16.1 Pollution

Pollution is a word that we are all aware of these days. What does it mean exactly? Our surroundings, the place we live, is being made unclean by our own activities. The waste things that we produce not only affect our own lives but also those of other living things, the plants and animals that we share our environment with. All living things depend upon the non-living parts of

the the environment to survive on the land, the air and the water and it is these 3 parts which are affected by pollution. 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' to soil.

- **What are pollutants?**

You might have observed the factories releasing the smoke into the atmosphere and waste into near by rivers, the smoke coming out of vehicles, adding pesticides to the fields, people taking bathe or washing clothes in the river, what all these activities of us resulting to? The substances which cause pollution are known as pollutants. It can also be defined as a constituent in the wrong amount, at a wrong place or at a wrong time. The pollutants are harmful to our health.

These pollutants affect air, water and soil and therefore the pollution is categorised into.

- Air Pollution
- Soil Pollution
- Water Pollution
- Noise Pollution

## **16.2 Air Pollution**

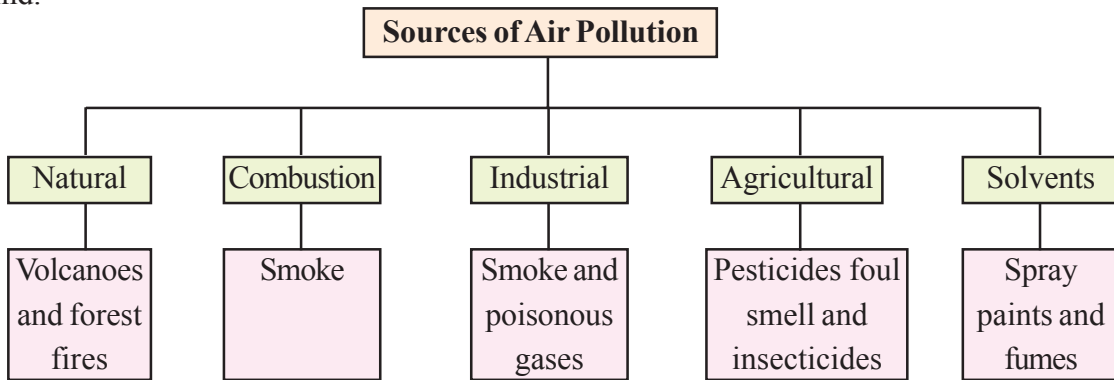
There's nothing quite like opening the door and breathing fresh and clean air, but how clean is the air you're breathing right now?

We know that oxygen is the most important component of air. All living beings are dependent on it for life. Humans and animals breathe in oxygen and breathe out carbondioxide. During the day, plants take in carbondioxide and give out oxygen. This helps in maintaining a balance in the composition of oxygen and carbondioxide 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 breathe in contains various pollutants. The gases you are breathing could be slowly deteriorating your health.

### **16.2.1 Sources of Air Pollution**

Various activities are worth examining because these are major causes of air pollution. Some people still cook using solid fuels (such as wood, crop wastes, charcoal, coal and dung) and kerosene in open fires and in efficient stoves. Most of these people are villagers or from poor economical background. These cooking practices are in efficient and produce high levels of household air pollution with a range of health-damaging pollutants include small soot particles that penetrate deep into the lungs. The use of insecticide sprays at home also contribute to pollute air. Apart from these burning of coal in thermal power stations, exhaust from automobiles, bursting of crackers, smoke from factories, spraying of insectides and pesticides also pollute environment. All these sources produce so much smoke that it is difficult to breathe.

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, which we cannot control, include gases emitted from volcanoes, gases produced during forest fires and dust which spreads with the wind.



### 16.2.2 Effects of Air Pollution

Pollution mainly effects the respiratory system of human beings leading to diseases like bronchitis and asthma certain types of skin and eye allergies like rashes and redness are also common. Along with human beings, plants do get affected with air pollution, the rate of photosynthesis and respiration is reduced by blocking of pores of leaves, inturn affects the quality and quantity of food, that we eat.

Pollution affects the environment,by forming smog, the fog with smoke and dust in the air, which causes poor visibility and may causes serious respiratory illnesses.

### 16.2.3 Ways to control air pollution

The ways to control air pollution are :

- Use a smokeless chulha (stove) at home. Provide a tall chimney to the chulha to carry the smoke away.
- Reduce the use of sprays at home.
- Vehicles must be equipped with special devices to reduce air pollution.
- Having chimney filters to factories will help in trapping the poisonous substances in the gases that are let out.
- Garbage should be disposed off hygienically preferably through sanitary landfills instead of burning.
- Planting trees for fresh & pure air.

#### *Check Your Progress...*

- 1) What are the sources of Air pollution?
- 2) Suggest some measures to control our pollution?

## 16.3 Water Pollution

You might have observed release of inadequately treated waste water into natural water bodies like lakes and rivers. This can lead to public health problems, where people use this water for drinking, bathing or irrigation.

Change in the colour, odour, taste of water is considered to be polluted water. Such water is unsafe for drinking or even for performing other chores in the houses.

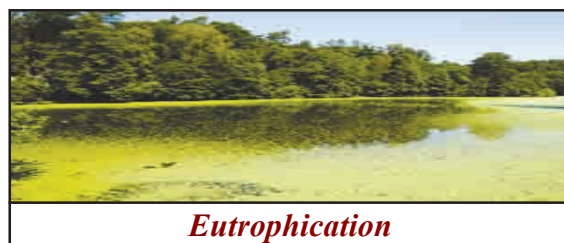
### 16.3.1 Sources of water pollution

Various sources of water pollution include

- i) **Industrial waste :** Industries produce a tremendous amount of waste which contains toxic chemicals and pollutants. Many industries not having a proper waste management system drain the waste in the freshwater, which goes into canals, rivers and later into the sea. The toxic chemicals may change the colour of water, increase the number of minerals called eutrophication, in turn change the temperature of the water and pose a severe hazard to water organisms.
- ii) **Sewage and waste water :** That is produced in each house hold are treated chemically and released into the sea along with fresh water. The sewage water carries harmful bacterias and chemicals that can cause serious health problems.
- iii) **Marine dumping :** The garbage produced by households in the form of plastic, paper, food, aluminium, rubber, glass is collected and dumped into the sea. These items takes many years to decompose. When such things enter the sea, they not only cause water pollution but also harm Aquantic animals in the sea.
- iv) **Accidental oil leakage :** Oil spill poses a huge threat to marine life. When a large amount of oil spills into the sea and does not dissolve in water, it causes problems for local marine wildlife including fish, birds and sea animals.
- v) **The burning of fossil fuels :** Fossil fuels like coal and oil when burnt produce a substantial amount of ash in the atmosphere. The particles which contain toxic chemicals when mixed with water vapour result in acid rain.



*Water Pollution*



*Eutrophication*

**vi) Chemical fertilizers and pesticides :** Chemical fertilizers and pesticides are used by farmers to protect crops from insects and bacterias. When it rains, the chemicals mix up with rain water and flowdown into rivers and canals, which pose serious damages for acquatic animals.

**vii) Animal Waste :** The waste produced by animals washed into the rivers cause various water-borne diseases like cholera, diarrhoea, dysentery and typhoid.

### 16.3.2 Ways to control water pollution

Some of the ways to control water pollution include.

- Make sure that untreated sewage water is not released into the sources of water.
- Industries should not be allowed to release untreated wastes into river or ponds.
- Defecation in open and near the water source should be discouraged.
- Bathing, washing clothes or bathing animals in or near the water sources should be avoided.
- Rivers and seas should not be used for disposal of garbage.

#### *Check Your Progress...*

- 1) What is water pollution?
- 2) What are the sources of water pollution?

### 16.4 Soil Pollution

Our country is largely dependent on agriculture, Thus we Indians give high priority to the agriculture, fisheries and livestock. Therefore, for surplus production it is very important to protect crops from any type of damage that occurs due to insects, weeds, rodents and crop diseases.

How can we protect crops? The obvious answer is use of pesticides and herbicides. Do you know these pesticides and herbicides is the leading cause of soil pollution?

Anything that causes contamination of soil and degrades the soil quality refers to soil pollution.

#### 16.4.1 Sources of Soil Pollution

Soil pollution can be natural or due to human activity. Activities of human that cause majority of soil pollution such as industries or pesticides in agriculture, generally these chemicals are insoluble in water and non-biodegradable. Therefore, these chemicals will not gradually decompose and keep on accumulating in the soil there by reduces the soil fertility and gets transferred into the body of plants and animals through food chain. this may cause many metabolic and physiological disorders in humans.

## 16.4.2 Ways to control soil pollution

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

- Use of correct farming techniques.
- Recycling of waste before disposal.
- Proper disposal method of household and industrial waste.
- Use organic fertilizers instead of chemical fertilizers and pesticides.
- Proper maintenance of sewage system.

### *Check Your Progress...*

- 1) What is soil pollution?
- 2) What are the measures to reduce soil pollution?

## 16.5 Noise Pollution

How do you feel by hearing sounds made by vehicles in moving traffic and how you feel when you listen to your favourite song. Some sounds are pleasant while others are not. Any unpleasant sound is called noise.

### 16.5.1 Effects of noise pollution

Hearing loud noises for a long period of time tend to disturb us, strain our nerves, cause headache. It can also affect the hearing ability of an individual.

### 16.5.2 Ways to control noise pollution

It is very challenging to get rid of all noises completely, but can definitely reduce them following are some of the ways to reduce noise pollution.

- Playing radio and TV's at low volume.
- Avoiding the use of loud speakers.
- Using vehicle horns only when it is necessary.
- Getting silencers fitted to our vehicles.

### *Check Your Progress...*

- 1) What is noise pollution?
- 2) What are the measures to reduce noise pollution?

## Key Points

- Introduction of harmful substances into the environment, which can have an adverse effect on living beings and on the environment is pollution.
- The substances which cause pollution are known as pollutants.



- Burning of coal in thermal power stations exhaust from automobiles, burning of crackers, smoke from factories can cause air pollution.
- Use of smokeless chulha and providing a tall chimney to the chulha can reduce air pollution at home.
- Industrial waste, sewage water, oil spills, marine dumping, animal wastes are the sources of water pollution.
- By avoiding open defecation, bathing, washing clothes, release of untreated sewage and industrial waste into water bodies are the ways to control water pollution.
- Use of pesticides, chemical fertilizers in agriculture, dumping of household and industrial waste results in soil pollution.
- Use of organic fertilizers and proper disposal of house hold and industrial waste reduces soil pollution.
- Avoiding the use of loud speakers, playing radio or TV at low volume, reducing the use of vehicle horns are the ways to control noise pollution.

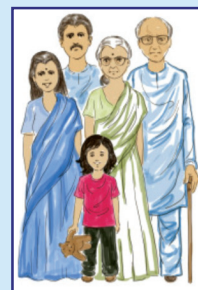
### Practice for learning outcomes

- 1) Define the term pollution and pollutant.
- 2) What are the sources of air pollution and write some measures to reduce it?
- 3) Why should we avoid open defecation, urination or spitting on soil?
- 4) Suggest some measures for controlling water pollution?
- 5) Mention the adverse effects of noise pollution.
- 6) How is soil polluted by spraying insecticides?
- 7) What is the cause of acid rain?
- 8) Air pollution among the following : ( )
 

A) Burning of fossil fuels	B) Sewage water
C) Use of plastic	D) Use of paper bags
- 9) Result of oil spills ( )
 

A) cleans the water	B) kills aquatic animals
C) cleans the oil	D) lack of food for birds
- 9) Match the following :
 

i. Air pollution	( )	a. Aquatic animals
ii. Marine dumping	( )	b. Collection of household waste
iii. Noise pollution	( )	c. Lung problems
iv. Soil pollution	( )	d. Hearing inability



# My Family

Rahul lives alone in a house who left all the relationships with his family. Once, his friend became sick started observing the care of parents, siblings on his friend living in his adjacent house. He started realising the care and love of his family. He wished to be with his family who love and shower him with care.

- Have you ever felt sick? You could recall the incident in your family when you were down with fever.
- How did your parents / family members take care of you?

We all live with our loved ones and enjoy their affection and support. We call this close group as "family". Most of our needs are fulfilled by the family. In this lesson you will learn meaning of family, its importance, functions, types and how it influences our lives.

## Learning Outcomes

### The learner....

- ◆ Explains the meaning and importance of a family.
- ◆ Explains the functions of a family.
- ◆ Discusses the life cycle of a family.
- ◆ Understands family life cycle and applies in their family life.
- ◆ Explains the role of family in taking care of family members.
- ◆ Explains the role of family in building effective interpersonal relationships among the members of a family.

## 17.1 Family

When you are filling an application for aadhar enrollment, Examination form recall that you write your full name.

- What will you write in your full name?

Generally we write our name that our parents give and also surname.

- What do surname indicates?

Surname is common for all family members. This indicates mostly the father's family name and tells about their ancestor's history. Surname comes by inheritance.

Family is a fundamental unit of society where two (or) more people are related to each other either by marriage, blood (or) adoption under a common roof and share source of income. The family is universal consists married couple and their children main characteristic features of a family are blood relation, companionship, common roof, sharing income, expenditure etc.

If you observe around you, people live in a group, we call it as a family. You can find different groups having different structures. Some groups have people from three generations that is, parents, their married children and their children. Some other groups consist of a married couple and their children.

## 17.2 Family - Types

There are two types of families.

- 1) **Nuclear Family** : When a family consists of a couple and their children both natural and adopted living together under one roof. It is called nuclear family. Some times one (or) two additional members may consists.

Example - Unmarried brother (or) Widow



*Joint Family*



*Nuclear Family*

- 2) **Joint Family** : Family consisting parents and siblings of the couple, their unmarried or married children and grand children. Such family is joint family. In joint family all the members live under common roof, sharing same kitchen, property. Generally, the elderly member is the head of the family.

Let us find out functions of the family.

## 17.3 Family - Functions

- What are the functions of a family?
- Where do you feel protected?

i) **Protection** : Recall when you were child, were you able to do all the activities on your own?

◆ If you have any grand parents in your family, are they able to do their works?

◆ Do you help your grand parents in their works?

Love and care towards children, elders, grand parents, sick, infirm is the important function of a family. Members in the family show love, protection and care towards each other.

ii) **Emotional bonding** : Love, affection towards a person in a family from parents, siblings and other family members is essential. If family provides love, care to the member in the family, then members establish healthy development. If it doesnot happen, members in the family suffer from anxiety and face hurdles in life.

iii) **Education** : Family is the first school to the child. Family helps the child to learn what to do and what not to do in the society. To settle in life each and every child needs education. It is the responsibility of the family to provide education opportunities to the child. Not only this but also child learns to respect elders and to be honest from the family.

iv) **Socio - Cultural Values** : The values that families pass on to the young ones are often filtered and adopted from the general social science of the society. Customs, traditions (culture), way of dressing, religion, beliefs, culture followed in the society are passed to the generations in the family.

v) **Financial Security** : Family ensures the economical needs of each and every member of the family. Food, shelter, clothing and also other facilities are provided by the family.

vi) **Recreation** : Members of the family live in a friendly manner. Important occasions like festivals, marriages, birthdays recreate the members of the family.

### Activity-1

1) Below is the list of some important functions of a family. Think about your family and the functions it performs. Tick (✓) mark of your response in the appropriate column.

Furctions of a family	Always fulfills	Sometimes fulfills	Never fulfills
Protection			
Emotional Bonding			
Education			
Financial Security			
Recreation			

### *Check your progress...*

- 1) What is a family?
- 2) Differentiate by one point between nuclear and joint family.
- 3) List out the functions of a family.

## 17.4 Changes in the structure of the family

You have been understood about types of families that is nuclear and joint family. Over the years, the structure of the family has been under going a quite change in India. Ask your elders in your family, about the type of families in those days. There has been a change in the occupation and style of living of people due to which there has been a shift from joint to nuclear families.

Let us see what other factors have contributed to this change.

- 1) **Industrialization** : Earlier, people were engaged in agriculture, but when income from agriculture is inadequate, some people moved to cities in search of jobs. As the rural youth got better education, they also moved to cities for better jobs. Poverty, drought, construction of projects, climate conditions, crop failure etc. are the reasons for migration which has led to the breakdown of the joint family.
- 2) **Large Size** : When the size of the joint family became unmanageable, sons moved out and established nuclear families.
- 3) **Education and employment of women** : As women got better education, they started taking up jobs outside the home. Based up on the jobs and education they started separating from joint family.

So, these are all the factors contributing to the gradual breakup of the joint family.

Eventhough changes took place in the structure of the family. There are stages in the family life cycle that are common in almost all families. Let us find out about family life cycle and stages present in it.

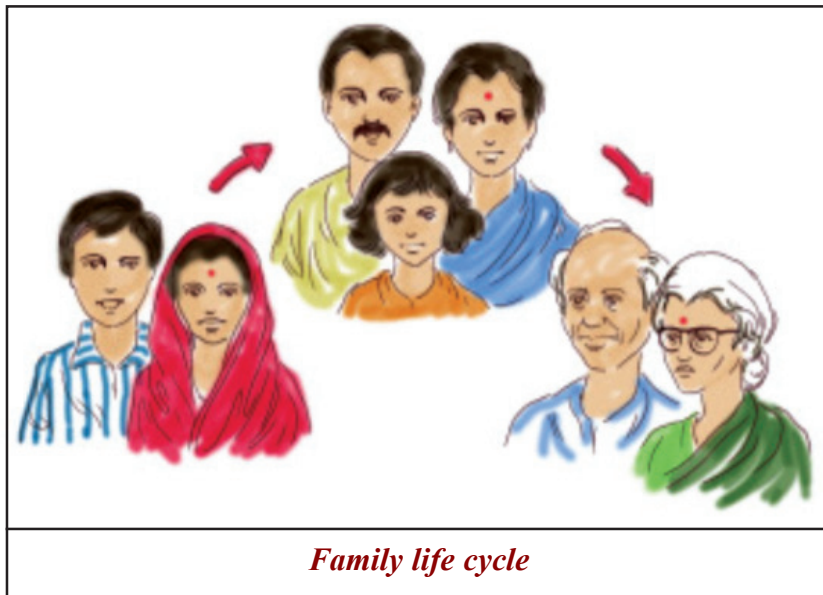
## 17.5 Family life cycle

Siri had gone to the wedding of her elder sister, Divya. She came back home and asked her mother "Could sister and brother-in-law be called a family?"

Her mother answered, your sister and brother-in-law are a couple, they are at the beginning stage of the family.

Does it make you wonder about the stages in family life.

Observe the families around you, each family will be in one or the other stages of family life cycle. If you see the above example. Siri's sister and brother-in-law are at the beginning stage of cycle. With the birth of eldest child, the family will enter the expanding stage. These children develop from infancy to childhood, childhood to adolescent and adolescent to adults and get settle and run their own households. At last, again Siri's sister and brother-in-law will remain as couple with their retirement and oldage. This is the family life cycle, where they started as couple and ended / remained as couple. Last stage is called contracting stage.



The stages of the family life cycle are

- Beginning stage
  - ◆ Independent young adult
  - ◆ Marriage
- Expanding stage
  - ◆ Parenting
  - ◆ Settling of children
- Contracting stage
  - ◆ Retirement

## 17.5.1 : 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. By understanding the stages in family life cycle, it will be easy to succeed and pass from one stage to another stage successfully. Prior knowledge of challenges at each stage equips us with confidence to handle the emerging situations better and the result will be happy family system.

## 17.5.2 : Family life cycle - stages

- i) **Beginning stage :** The life cycle of a family begins with youth. In this stage individuals lead an independent life. Develops intimate relationships with the people outside the family. Marriage is one of the most intimate relationships that a person forms. Marriage is the prominent change in the lives of both boys and girls. Both make adjustments pertaining to the changes due to marriage.

How will you accept the entry of a new member into the family? Think.

The adjustment is more as the part of the girl because she leaves her home of birth and enters the new family. Members of her new family must understand her to establish a healthier environment in the family.

Guidelines to promote healthy relationship in a family are given below :

- Talk to each other courteously not rudely.
- Do not talk only about self but learn to listen to others.
- Helping each other.
- Working together in the family.
- Sharing responsibilities each other equally.
- Look after the sick and infirm.
- Share your plans with other family members.
- Do not criticize but express your appreciation.

After the beginning stage, couple enters in to expanding stage with the birth of the first child.

- ii) **Expanding stage :** This stage starts with birth of first child.

Having children is dependent on couple's decision. The couple should be physically, mentally, financially and emotionally prepared to handle. Both husband and wife should understand their responsibilities towards parenthood so they can lead this stage successfully. During this stage the parents bear and rear their children.



- 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 community services and enjoy the company of their grand children.

## Activity-2

- 1) You may have observed young couple in your family (or) neighbourhood with a new born baby, then write about the changes in their sleep, food habits, socializing, and entertainment.
- 2) Observe the stage in which your family is there and write about the role and responsibilities your parents are performing. Exhibit your report in the classroom.

### *Check your progress...*

- 1) What are the factors responsible for the changes in the structure of the family?
- 2) To what extent do you think that women education and employment are the reasons for the change in the family structure?
- 3) What is the advantage in understanding the family life cycle?

## 17.6 Role of a family in different effective interpersonal relationships.

- Whom do you like most in your family? Why?
- Are you dissatisfied with the behaviour of any person in your family?

Family relations depend on the way every member behaves and interacts with each other. Cordial, harmonious relations and positive thinking can make life easier where as 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 try to maintain good relationship with each other. There can be few people in some families who are ambitious, self centered, 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.

More and more people are moving to nuclear families as a result of migration, industrialization, employment.

Various factors that contribute in strengthening the relationship are

- A clear understanding of one's duties and responsibilities.
- Expressing love and empathy.
- Becoming sensitive to other person's needs and comforts and putting others happiness before your own.
- Helping others in the family.
- Not interfering in other's affairs.

All these factors are important skills for a healthy life. These are called life skills. 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.

### Activity-3

- 1) 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 relations.

#### *Check Your Progress...*

- 1) Write two suggestions to establish effective interpersonal relationships.
- 2) What are the reasons for change in the structure of a family?

### Key Points

- Family is a fundamental unit of society where two (or) more people are closely related and lives under common roof.
- Family structure is of two types, nuclear and joint family.
- Functions of the family are protection, building emotional bonding, passing socio cultural values, financial security, recreation.
- Changes in the structure of the family is due to industrilisation, large size of family, women education and employment.
- Stages in family life cycle are beginning, expanding and contracting.
- In order to build effective interpersonal relationships among the members of the family, one must establish good understanding about roles and responsibilities, sensitive for other's needs and comforts, displaying genuine concern and love.

## Practice for learning outcomes

- 1) What is the importance of understanding a family life cycle?
- 2) What are the merits and demerits of a joint family?
- 3) What is the role of parents in the growth and development of the children.
- 4) Explain the functions of a family?
- 5) Two years back Rani got married. She lives in a joint family with her husband's parents, brothers, with her sister-in-law and co-sister. Rani established good relationships with all the members except with her co-sister. If you were in Rani's place how would you improve your relationship with co-sister.
- 6) What are the stages in family life cycle? In which stage your family is now? How can you say that you are in that stage?
- 7) What are the factors responsible for the change in the family structure?
- 8) What is the difference between nuclear and joint family?
- 9) Last stage in the family life cycle ( )  
A) Expanding stage                      B) Contracting stage  
C) Beginning stage                      D) Middle stage
- 10) Match the following :
  - i) Factor that breaks relation ( ) a) large size
  - ii) Factor that binds relation ( ) b) expanding stage
  - iii) Merit of a joint family ( ) c) criticizing
  - iv) Reason for formation of a ( ) d) love and care  
nuclear family
  - v) A stage in family life cycle ( ) e) financial security



# How Life Begins?

We know that parents and their children live together in a family. Children may naturally born (or) legally adopted. You may have observed the birth of a baby in your family (or) neighbourhood. you may be excited watching the baby playing all by him/her self, smiling, moving hands and feet,

- Did you wonder where that little baby come from?

In this lesson you will find out how life begins and child develops.

## Learning Outcomes

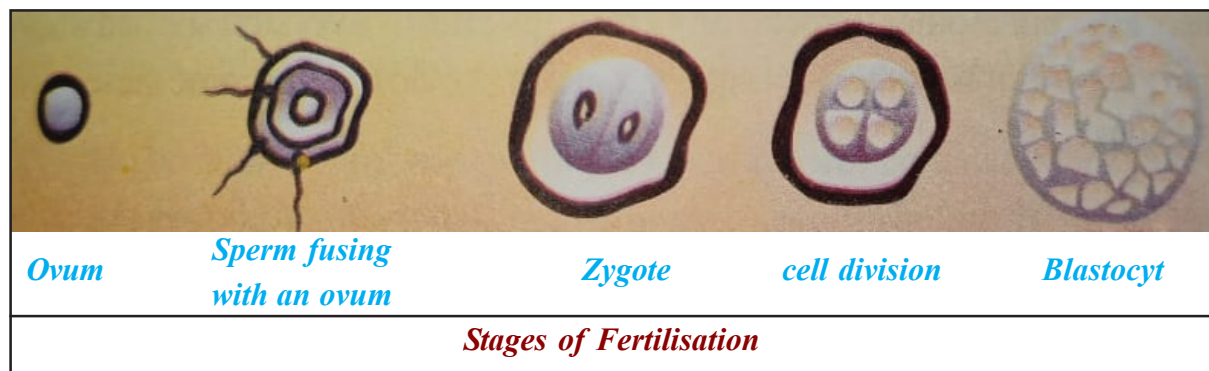
The learner....

- ◆ Relates the signs of pregnancy with the changes taking place in a woman's body.
- ◆ Describes the development over the three trimesters.
- ◆ Recognizes the need for taking care of a woman before and after the birth of a baby.
- ◆ Applies the knowledge of care to be taken after birth of a baby.
- ◆ Explains the factors that effect on developing embryo.
- ◆ Explains the need for a trained midwife for the delivery of the baby.

Let us find out where and how birth begins.

## 18.1 Conception

Fusion of male's sperm with woman's ovum/egg is called fertilisation. Zygote is formed after fertilisation. Conception begins with this zygote formation.



### 18.1.1 Signs of pregnancy

- Woman misses her menstrual period. This is often the first sign. Morning sickness, nausea which gives the feeling of wanting to vomit.
- The frequency of urination may increase.
- Changes in the breasts. The breasts tend to enlarge. The nipples also enlarge and become more prominent.
- There may be some changes in the food habits.

Eating mud (or) chalk. Some women develop a strong liking for sour foods like pickles, tamarind. An aversions to certain foods and smells. However not all women undergo these changes to the same extent. Some women may experience such feelings in one pregnancy and not for the other.

- There may be changes in the production and levels of hormones.

#### Activity-1

Ask your mother about her cravings and aversions she had when she was carrying you (or) your siblings. Make a report on the same.

### 18.1.2 Development of foetus in the womb

Embryo develops in the mother's womb after the fertilisation. For about 9 months foetus remains in the mother's womb. You may observe many changes taking place during this period. These 9 months can be divided into three trimesters.

#### **The first 3 months (or) the 1<sup>st</sup> trimester :**

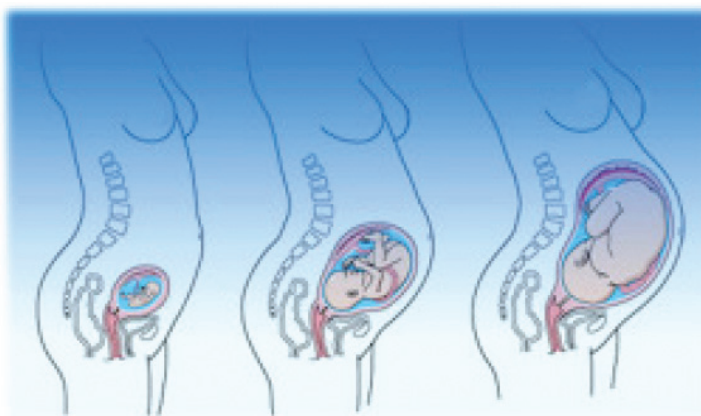
- The foetus attaches itself to the uterine wall.
- Structures to protect and feed the foetus from amniotic sac, placenta and umbilical cord.
- Many external and internal organs form.
- The sex of the foetus can be known.

#### **3-6 months (or) the 2<sup>nd</sup> trimester :**

- Rapid increase in size.
- Foetus begin to move.
- Brain development is fast.
- Foetus reacts to light and sound.

### 6-9 months (or) the 3<sup>rd</sup> trimester :

- Increase in size continues.
- Foetus can survive, if born around this time.
- Antibodies are transmitted from mother to the foetus so that the child is protected from diseases once he is born.



*Development during the three trimesters*

At the end of nine months, the foetus usually turns in an upside down direction in order to be born.

### 18.1.3 Factors affecting the growing foetus

You have seen the development of foetus for about 9 months in the mother's womb. Changes taking place in the foetus may affect the mother physically and mentally. In the same manner, are there any factors that affect the growing foetus?

Let us see the factors that affect the growing foetus.

- Mother's Emotional State :** When a mother becomes angry, irritated during pregnancy, some chemicals will be released from glands and enter the blood. This results, a baby with irritable behaviour after birth. A happy mother gives birth to a happy baby. Therefore, the mother should try to avoid stress and tension.
- 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 placenta. If the mother's diet lacks in some nutrients, the baby will be born weak.

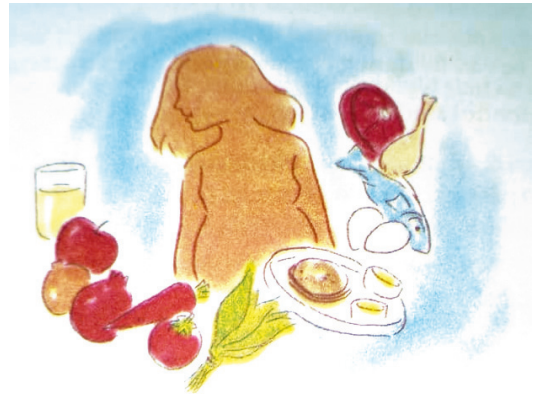
### Do you know?

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. A pair of sex chromosomes are present among 23 pairs of chromosomes in human cells. Karyotype is 44 + XX in females and 44 + XY in males. If mother's 'X' chromosome fuses with father's X' chromosome the resultant is female child and if mother's 'X' chromosome fuses with father's 'Y' chromosome the resultant is male child. So, It is only the father who carries the chromosome that determines whether the sex of a baby will be male (or) female. This also occurs randomly.

A pregnant woman's diet must contain

- Rice, wheat that are rich in carbohydrates which gives energy
- For muscle development it requires proteins therefore pulses, eggs, meat, leafy vegetables must be taken.

Sufficient water and foods rich in vitamins, minerals like iron, zinc must be included in the diet.



*Food of pregnant woman*

- iii) **Mother's age** : Before 20 years, the female reproductive system is not very well developed and after 35 years the reproductive system becomes a little weak. So, age between 20 and 35 years is the best age to have a baby.
- iv) **Medicines affect the baby** : Some medicines can pass through the placenta and enter the baby's body. consult the doctor before taking the medicines. Be away from X-Rays, these can harm the growing foetus.
- v) **Disease causing germs** : If a mother has diseases like Rubella (german measles), AIDS etc these germs will pass through the placenta and damage the growing foetus. Mothers must be careful and avoid these types of infections.
- vi) **Drugs, alcohol and smoking** : If mother having habits of taking drugs, alcohol, smoking these pass into blood stream of the foetus through placenta and can cause major damage to the foetus. A pregnant woman should avoid habits of taking drugs, alcohol, smoking.



*A pregnant woman should avoid drugs, alcohol and smoking*

### Do you know?

Ultrasound is a technique where sound waves of very high frequency are used to check the growth and health of the foetus this procedure is very useful in detecting many defects in the foetus at very early stages.



Write two slogans to inform pregnant women about importance of good health.

**Check your progress...**

- 1) Describe the development of foetus during 2<sup>nd</sup> trimester.
- 2) Write two changes that happen in women after conception.
- 3) What are the factors that affect the growing foetus?

## 18.2 Care to be taken during pregnancy (Pre Natal Care)

We know that development of foetus in women's womb for about 9 months effect the women physically and mentally. Women's anxiety, food habits etc may also effect the developemnt of foetus. Mother's health is most important to give birth to a healthy child. Therefore, there is a need to take care of a pregnant women. People around the pregnant women must take care of her. During pregnancy, the family must ensure that the following measures are taken care of:

### 18.2.1 Medical check up

After the first missed menstrual period, the lady becomes anxious to know if she is pregnant. This can be done with a simple urine test done by the doctor (or) 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. The pregnant woman should get herself registered at the nearest health centre (or) with a doctor.

If ASHA (or) an Anganwadi Worker is available, seek the help of them. Consult the doctor and few tests like blood, urine, VDRL (for sexually transmitted infections), HIV/AIDS must be done. Frequently weight must be measured and must follow suggestions of the doctor to be healthy.

### 18.2.2 Nutrition

Good food habits enhance the development of foetus. A regular and balanced diet should be taken. Diet of a pregnant women must contain carbohydrates which gives energy, protiens for muscular development and also vitamins, minerals, fibre and sufficient water. Nutrients in appropriate proportions must be included.

Interview at least two pregnant women to findout the changes they have made in their diet to ensure theirs and their baby's good health. Note your observations.

### 18.2.3 Weight

A pregnant woman gains weight as the foetus grows. This indicates healthy growth of the baby. If she stops gaining weight (or) if there is sudden weight gain in the last few months. She must go to a doctor.

### 18.2.4 Taking medicines

Any medicine taken by a pregnant woman must be strictly under medical supervision of a doctor. Tetanus vaccination must be taken and to prevent anaemia Iron and folic acid supplements are taken under supervision of doctor.

### 18.2.5 Clothes to be worn

Comfortable clothes to be chosen according to the changes taking place in the body.

### 18.2.6 Exercise and rest

Pregnant women can do her daily routine work. She must not lift heavy weights. Under the guidance and advice of the doctor can do few exercises for easy delivery. Doctor advises approximately 10 hours of rest (or) sleep may be needed to the pregnant woman.

#### *Check your progress.....*

- 1) Why there is a need for medical checkup for pregnant women?
- 2) What components must be there in the diet of pregnant women?

## 18.3 Safe delivery

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?". She can easily reduce her anxiety by finding out where she can have a safe delivery it may be a hospital, Primary Health Center (PHC) in a registered nursing home. If a woman has not been able to get herself registered with a doctor and 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 can do everything scientifically and know what to do in case of any complication.

If the delivery has to be done at home in emergency, things required are a large clean cloth, antiseptic soap, clean brush for cleaning hands and finger nails, clean cotton, new razor blade (to cut the umbilical cord), sterile clean cloth, two ribbons (or) clean cloth (for tying cord), torch light. Safety measures to be followed especially while cutting the cord.

### Activity-4

Identify and make a list of a hospitals / nursing homes / primary health care centre in your neighbourhood where deliveries can be conducted.

## 18.4 Care to be taken for a new born baby (Post Natal Care)

When the baby is born, usually about 17-19 inches long and weight 2.5 kgs. skin is wrinkled and hair is present. A new born baby has a white cheese like substance which is antiseptic. Do not remove it. It will automatically fall off after 2-3 days. The baby should be put on breast milk from first day. The first milk colostrum needs to be fed. Colostrum is the yellowish milk from the mother's breast for the first two days after delivery. It contains a lot of antibodies which protect the baby from infections. It also contains proteins. Care must be taken to keep the cord dry. Baby must

be bathed with luke warm water with soft soap. Family member must aware of immunization schedule of the baby. Care must be taken regarding diet of the baby. 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 an appropriate amount. Mothers who are working may have problem for child care. So, government of India has granted the maternity leave.

## 18.5 Planning the family

Married couple can talk to elders, friends (or) doctor about advantages of having a small family. Decision may be dependent on thier individual opinion. Family planning schemes are often seen in televisions, advertised on radio.

- Do you know, what is family planning and why planning the family is so important?

You may have seen around you, some families who have many children and some having one or two children.

- Do you see any difference in these two families?

With so many pregnancies with less gap in between, the mother's health is affected. Mother is unable to give proper attention and care due to immediate pregnancies. In a small family, mother can look after the needs of children and she can stay healthy. Good education and training can reach the children. There must be atleast 3 or 4 years gap between the two pregnancies.

Therefore elders say small family is the happy family.



*Unplanned family*



*Planned family*

### *Check your progress.....*

- 1) What are the things required for delivery at home?
- 2) Write measures regarding post natal care?
- 3) Do you think that, family planning is necessary? Why?

## Key Points

- Conception begins with fusion of father's sperm and mother's ovum by forming zygote.
- Signs of pregnancy are, woman missing her period, frequent urination, changes in the breasts etc.
- The development of foetus in the womb is divided in to 3 trimesters 1) The first 3 months (or) the 1<sup>st</sup> trimester 2) 3-6 months (or) 2<sup>nd</sup> trimester 3) 6-9 months (or) 3<sup>rd</sup> trimester.
- Factors affecting the growing foetus are emotions of the mother, diet of mother, age, medicines, germs, alcohol, tobacco.
- Regular medical check up, food (diet), weight, clothes, exercise and rest are the areas where care to be taken for pregnant woman.
- Care must be taken by the family for safe delivery.
- Post natal care involving dryness near the cut cord, breast feeding, bathing with luke warm water etc.
- Based on the consequences due to population growth, family planning must be conserved.

## Practice for learning outcomes

- 1) How does a woman come to know that she has become pregnant?
- 2) How development of foetus takes place during first trimester to third trimester? Explain.
- 3) What are the safety measures taken for a new born baby?
- 4) Why the babies are fed with breast milk?
- 5) What is the role and responsibilities of a family for a woman from her conception to birth of a child?
- 6) "Every family must follow family planning". Explain the above statement.
- 7) When do the sex of the baby is determined. ( )  
A) First trimester      B) Second trimester      C) Thrid trimester      D) After birth
- 8) Fusion of egg and sperm is called. ( )  
A) Blastocyst      B) Fertilization      C) Zygote      D) Embryo
- 9) Foods that give energy. ( )  
A) Proteins      B) Carbohydrates      C) Vitamins      D) Minerals
- 10) Match the following :  
i) Protects foetus ( ) a) Ultrasound  
ii) Yellow colored milk ( ) b) Fertilized egg  
iii) Technique to detect defect in foetus ( ) c) Nutrition of foetus  
iv) Placenta ( ) d) Amniotic Sac  
v) Foetus ( ) e) Colostrum



# Growth and Development of a Child

The clothes which you bought two years ago, are they comfortable to wear for you now?

You might have observed in your family that elder sisters / brothers will give their old clothes that do not fit, to their younger sisters / brothers.

- Why do their old clothes do not fit to them?

If you observe children in your family, they first speak small words containing one (or) two letters, then later words containing more letters followed by sentences.

- Why can't they speak sentences at first?

Chandra's aunt brought her new born baby to the family. Chandra noticed, changes in the new born baby in few days. chandra was excited to notice rapid changes in baby's height, weight, expressive skills. In this manner there will be many changes from infancy to childhood, from childhood to adolosece, from adolescence to adults.

Growth and development are the reasons behind these changes. Let us study about these in this lesson.

## Learning Outcomes

### The learner....

- ◆ Differentiates between growth and development.
- ◆ Explains the principles of development.
- ◆ States the different types of development.
- ◆ Recognizes the role of heredity and environment in human development.
- ◆ Recognizes the factors affecting development and suggests to promote development of children.

## 19.1 Basic concepts of development

Chandra wondered noticing changes in her new born sister every day. Let us learn more about these changes.

### 19.1.1 Growth and development

Chandra's new born sister was growing taller and heavier. This is known as 'Growth', which refers to increase in weight, height and changes in body proportions. Growth takes place in the physical aspect only. It refers to quantitative changes, example it is possible to measure how tall a child has grown over a specific period of time. While the child was growing physically, she was also showing changes in her behaviour and responses. All these changes are signs of development. Development takes place in all aspects such as physical, cognitive, language, social, emotional. The term 'development' refers to qualitative changes in an individual. Development cannot be measured. Example : It is not possible to measure the child's increased ability to adjust in groups and make friends. Growth stops at certain period of life but development continues till death. Potential traits like sitting, crawling, creeping, walking etc are present at birth in the individual.

### 19.1.2 Maturation and learning

- Can a baby able to run before she can walk?

Few potential triats are controlled by heredity in an individual. These unfolds at the appropriate time. These activities can be done when the body becomes mature enough for those activities this is called 'maturation'. Acquiring new skills due to environment stimulation and training is known as learning. For example : Bicycle riding, swimming.

These 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.

### 19.1.3 Heredity and environment

You might have heard saying that, eyes of new born baby resembles her mother (or) skin colour resembles her father. We know that life begins with fusion of ovum and sperm. Thread like structures called chromosomes are present in both the ovum and sperm. Genes are present on chromosomes. There genes carry the information pertaining to eyes, hair and skin colour, facial features, height. Transfer of genes from parents to their children is called heredity. Heredity determines a child's ability in a variety of fields, including physical characteristics. For example level of intelligence, proficiency in necessity, interest in games. Hereditary factors lay the foundation for development and it is the quality of this foundation that is helpful in the future growth and development.

## Environment

All the factors except the genes that affect a person from the beginning of his life are the environment. Right from conception, the beginning of life in mother's womb, the growth and development of human beings is influenced by a variety of environmental factors.

**i) Environment in the womb of the mother :** What is available to the child for his nourishment in mother's womb from the time of conception till birth is quite important. A few factors associated with this period are

- ◆ Single child or multiple children getting nourished in the womb.
- ◆ The quality and quantity of nutrients.
- ◆ Affect of radiation on developing embryo.
- ◆ Any damage or accident to the baby in the womb.

**ii) Environment available after birth :** Whatever a child gets from different conditions of his environment after the birth influence growth and development. Any accidents which happen in life time influences growth and development. For example, if a child's nervous system is damaged in an accident, it will affect on his mental development. A child's growth and development is greatly influenced by the quality of physical environment, medical care and nourishment available to him. These include open space, balanced diet, protection from diseases etc. What a child gets from his social and cultural environment influences the entire course of development. A few such conditions are

- ◆ Parental and family care.
- ◆ Economic and social status of the parents.
- ◆ Children rearing methods.
- ◆ The quality of schooling and peer group relationships.
- ◆ Opportunities for active participation. Like wise, heredity and environment influences growth and development.

### Activity-1

Write the activities that, you and your family members have learnt by the affect of environmental factors.

#### *Check your progress...*

- 1) How do environment play role in promoting development?
- 2) Write one difference between growth and development.
- 3) What is heredity?



## 19.2 Principles of development

Development, although, an individual phenomenon has been found to follow a logical and sequential pattern. It is operated by some general rules (or) principles.

- Are any two people in your family identical?
- Is everyone in your family able to do the same things?

No one in the family will be alike and everyone cannot be able to do the same things. Let us find out the reasons behind these.

Although no one in the family are same, 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.

- i) Development involves change :** From the moment of conception to the time of death, the person is undergoing changes. Difference in the head size, length of the arms and legs in relation to the body can be observed. Every year along with increase in height and weight, baby's mental abilities also increased.

For example : Baby shows language developemnt and better ability to reason and remember.

- ii) Rate of development at different age levels is different :** The child develops physically at a fast pace in the first six years of life. The pace of development slows down in the next few years. Rate of development is different at different age levels.

- iii) Development is sequential and orderly :** All the types of development follow a particular order and sequence.

For example : a) No child is able to walk before she can sit.

b) Child first learns to speak single words and then uses sentences.

c) Simple things are learnt before a child can perform any complicated task.

- iv) Development takes place from head downwards :** One of the first things that an infant learns is to hold her head. It is only later that she can turn over in her bed, and then is able to sit up, stand (or) walk. This happens because development takes place in the head region first and then in the trunk region and lastly in the lower region, that is the legs.

- v) Development takes place from the centre to the outside :** In the beginning baby uses whole body for capturing any object. Gradually, baby tries to grasp the object using arms. Later baby learns to pickup objects with hands and finally learns to use fingers.

- vi) Individual differences in development :** Even though there are similarities among individuals in triats, there are developmental differences. Even individuals have same height and same physique, one can express himself fluently while the other is still learning.

**vii) Development is a result of both maturation and learning :** Maturation is unfolding of characteristics potentially present in the individual. Unless there is a physical maturation, one cannot do any work. Example : Three months baby cannot walk because baby is not biologically ready (or) matured enough to walk. Learning is the development that comes from efforts and practice. Deprivation of learning opportunities limits the development.

*Check your progress.....*

- 1) Name two principles of development.
- 2) "Development takes place from head to downwards" explain.

### 19.3 Factors influencing development

Both heredity and environment are powerful factors. Development of an individual may be influenced not only by heredity but also by environment. Few environmental factors are nutrition, child rearing practices, opportunities to learn.

- i) Nutrition :** Nutritious food effects on growth and development of an individual. If the child is getting good quality of food to eat, then chances of developing to her potential are high. 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.
- ii) Opportunities to learn :** If the child is allowed to explore the environment, given opportunities to participate in varied activities then child can learn many.
- iii) Child rearing practices :** The way the children reared may affect their development. Rearing practices depend (or) determined on the values of the individuals.

There are three basic types of child rearing practices

- ◆ **Autocratic :** Where child is only supposed to do what the parents says.
  - ◆ **Democratic :** Where the parent is a guide, but the child is also allowed to say in her activities.
  - ◆ **Permissive :** Where the parent allows the children to do whatever they want to do.
- iv) Space to grow :** A place with physical, cognitive resources is suitable for growth and development.

We understood the factors influencing development, let us learn types of development.

### 19.4 Types of development

Remember the incidents which made you happy (or) sorrow.

- What were your feelings at that time?
- What were your actions at that time?
- Who will help in lifting heavy objects in your home?

i) **Physical development** : The baby gradually develops in height, weight and also in walking, jumping, running, writing over time proceeds. Changes in these are referred to as physical growth. Physical development is the most recognised and observable change. This development is largely dependent upon the child's health and nutritional status.

ii) **Social development** : You might have shared your objects with your friends (or) the people surrounding you.

- Do you provide support to people around you (or) to your friends at their work?

Supporting (or) helping the people around you is the indicator of sound social development. Social development is developing social skills like sharing, cooperation, patience, interaction with peers and others.

iii) **Emotional development** : Happiness, sadness, excitement, angry these are all emotions. 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.

iv) **Cognitive development** : Children play with toys, puzzles and other objects in their environment. Yet new knowledge is being explored in the atmosphere. These methods will increase children cognitive abilities like thinking, reasoning, problem solving ability and memory development. Cognitive development focuses on how children learn and process information.

v) **Language development** : Language development is important to express our feelings to others in our daily lives. We express our feelings / opinions / views in different methods to others. Example by writing, speaking, sign language, facial expressions 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 these types of developments can be termed as 'overall development'.

We learnt about development in different types of abilities.

- Whether all the abilities are present in one person?

Howard Gardner, an American cognitive psychologist proposed multiple intelligence theory. According to him, each and every individual are intelligent but the way of learning and expressing are different. In humans, there are many different learning methods and information processes that leads to multiple intelligence. These are about 8 different types they are linguistic, bodily-kinesthetic, logical, interpersonal, cognitive, musical, intrapersonal, naturalistic. Gardner has suggested, everything can be taught is more than one way.

### *Check Your Progress...*

- 1) "Nutrition influences the development" Explain.
- 2) List out different types of development.

## Key Points

- Growth is a quantitative where as development is a qualitative change.
- Few potential traits are genetically controlled by birth, these unfolds at the appropriate time. This is called maturation.
- Acquiring new skills due to environmental stimulation and training is known as learning.
- Inheritance of traits from parents to children is called Heredity.
- All that is around us constitute environment.
- Principles of development are development involves changes, rate of development at different age levels is different, development is sequential and orderly, development taking place from head to downwards, also from centre to the outside, individual differences in development, development is a result of both maturation and learning.
- Heredity and environment affects development of a child.
- Types of development are physical, social, emotional, cognitive, language.

## Practice for learning outcomes

- 1) Explain the terms growth and development with examples.
- 2) How does heredity and environment affects the development.
- 3) 'Good emotional development helps in establishing cordial relationships'. Justify this statement.
- 4) "Word errors arise when Siri speaks on stage. Name the aspect of development in which Siri is lagging behind. Suggest methods to help Siri to improve her development.
- 5) Explain the different methods of child rearing practices.
- 6) Characters from parents are inherited to children through ( )  
A) Environment      B) Genes      C) Inheritance      D) Heredity
- 7) Pattern of development ( )  
A) Head to downwards      B) Legs to head  
C) Waist to head      D) Legs to waist
- 8) Match the following :  
i) Social development ( ) a) Control over anger  
ii) Moral development ( ) b) Recognizing, memorizing  
iii) Emotional development ( ) c) Ability to use hands  
iv) Cognitive development ( ) d) Ability to interact with each other  
v) Physical development ( ) e) Ability to understand good and bad



# **Growth and Development from Infancy to Childhood**

- Why does not everyone grow at the same speed?
- How is the growth in children at different stages of development?

Growth and development includes not only the physical changes, but also some of the changes in emotions, behaviour, speech, personality and thinking that children develop as they begin to understand and interact with the world around them using their senses.

A baby is called an infant, the first year after birth. Early childhood begins at age of 2 years. A child may be referred to as a toddler. Childhood continues until adolescence.

An infant is called a newborn for the first month after birth. Infancy is the period of most rapid growth after birth. A toddler is a young child who is learning to walk or "toddle." (1 to 3 years). Early childhood is from 3 to 8 years old and middle childhood refers to 9 to 11 years old.

All the developments in a child are a result of both heredity and environment.

Let us study the growth and development of infancy to childhood.

## **Learning Outcomes**

### **The learner....**

- ◆ Explains the different stages of growth and development.
- ◆ Differentiates the growth and development at various stages.
- ◆ Recognizes the role of heredity and environment in human development.
- ◆ Suggests necessary activities to promote optimal development of children.
- ◆ Applies knowledge of human growth and development in day to day life.

## 20.1 Physical development

### 20.1.1 Changes in height and weight

Children of the same age vary greatly in height and weight.

When born, a baby measures 17 to 19 inches. The height doubles by 5 years and increases at the rate of 7.5 cm per year till adolescence.

Similarly the newborn weighs about 2.5 kg 3.25 kg (5-8pounds) at birth, double the birth weight by 4 months. Birth weight triples at the end of first year. The baby gains weight by 1.25 to 2kg annually, during the second and third year.

- Growth rate is fast till the first one and half years of age.
- During early childhood (2-6years) growth is not rapid. Children improve skills such as walking, running, jumping, balancing etc.
- Growth rate is more during adolescence.

**Growth chart :**

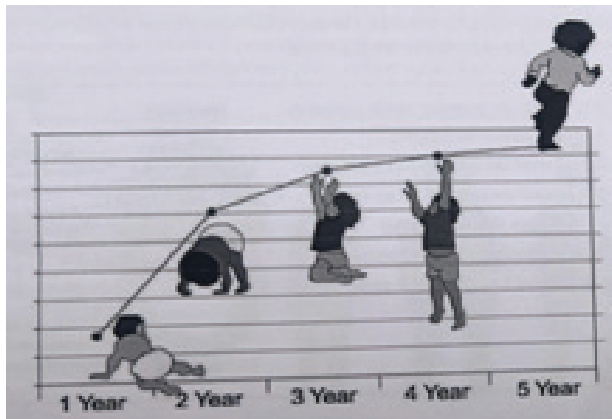


Chart for Girls		
Age	Weight(Kg)	Height(cm)
Brith	3.2	49.9
3 months	5.4	60.2
6 months	7.2	66.6
9 months	8.6	71.1
1 year	9.5	75.0
2 years	11.8	84.5
3 years	14.1	93.9
4 years	16.0	101.6
5 years	17.7	108.4
6 years	19.5	114.6

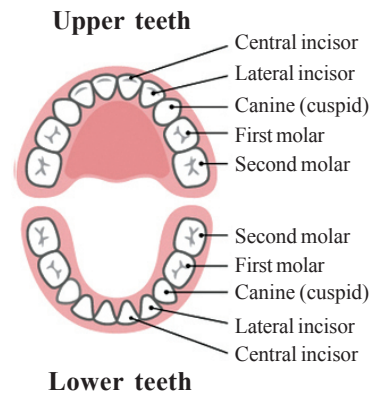
Chart for Boys		
Age	Weight(Kg)	Height(cm)
Brith	3.3	50.5
3 months	6.0	61.1
6 months	7.8	67.8
9 months	9.2	72.3
1 year	10.2	76.1
2 years	12.3	85.6
3 years	14.6	94.9
4 years	16.7	102.9
5 years	18.7	109.9
6 years	20.7	116.1

### 20.1.2 Development of teeth

A child at birth does not have any teeth. They start growing from three to four months of age, but start appearing at six to eight months of age. They are temporary teeth or milk teeth. They are 20 in number at 2 1/2 to 3 years of age. At 5 to 6 years of age they are replaced by permanent teeth, which are 32 in number. Generally 28 teeth appears first. The remaining four teeth (wisdom teeth) may or may not come.

The order of primary teeth eruption (teething age) is as follows :

- i) Central incisors (6-12 months)
- ii) Lateral incisors (9-16 months)
- iii) Canines (16-23 months)
- iv) First molars (13-19 months)
- v) Second molars (22-33 months)



### 20.1.3 Development of bones

Bones shape and support the body. Bone development consists of growth in bone size and change in their composition. The bones become harder with the growth of the child. (Ossification). Bones of the babies are soft and become harder with their growth.

### 20.1.4 Other physical changes

Internally rapid brain development, respiratory, circulatory, digestive systems and enlargement takes place. Muscles and fat tissues increase in the body.

## 20.2 Motor development

The word motor refers to muscular movements. It is a voluntary movement of the body or parts of the body.

### 20.2.1 Infancy

Newborns depend on somebody for help. But this situation changes very soon in two years. Motor development means control over body movements. It is of two types.

- 1) **Ground motor development** : development involving control over large body muscles.  
Eg: crawling, sitting, standing, running, climbing staircase, riding tricycle.
- 2) **Fine motor development** : development involving using small body muscles.  
Eg : holding, drawing, writing, catching etc.



## 20.2.2 Childhood

**Gross motor skills :** During the first five years, the child gains control over gross motor skills. These skills can be performed with greater accuracy.

After five years of age, major developmental changes take place. Muscular coordination improves a lot.

Eg: running, jumping, skipping/hopping, climbing staircase, ball throwing and catching etc.

**Fine motor skills :** The ability to manipulate the objects or working with hands starts in early childhood. When they play with small objects and perform activities, their small muscles develop and fine motor skills improve. Eye-hand coordination also improves at this age.

Eg: self-feeding, self- dressing, writing, copying, drawing etc.

### Activity-1

Observe the infants and children at your house, family and surroundings. Write the observed motor skills you observed in the form of a table.

#### *Check your progress...*

- 1) Whose growth is more in boys and girls?
- 2) Compare the development of ground motor skills of infants & childhood.
- 3) What are the different types of teeth in a 3 year old child? How many are they?

## 20.3 Cognitive development

Cognitive development means development of perception, memory, understanding, knowledge, etc. It focuses on how children learn and process information. A child's thinking is a result of both age and increased experiences. They can understand their environment by using their senses (seeing, hearing, tasting, smelling and touching.)

### 20.3.1 Infancy

- 1) Children at 2-3 months old discover their thumb or hand or occasionally their own foot.
- 2) Gradually by six months, they begin to play with objects. Eg: toys, glasses.
- 3) Children begin to learn the symbols by 2 years.
- 4) Children of two years are very active learners.

### 20.3.2 Early childhood

- 1) The child's mastery in use of symbols increases.
- 2) They are less self centred at this age and become flexible.
- 3) They can focus on only one aspect of a situation.

## 20.4 Social and Emotional development

Social and emotional development includes the child's experience, expression and management of emotions and the ability to establish positive and rewarding relationships with others. Infants experience, express and perceive emotions before they fully understand them. The seeds of social and emotional behaviour are sown in infancy itself.

Emotional well-being during the early years has a powerful impact on social relationships. They develop social skills like sharing, cooperation, patience etc. in their interaction with peers and others.

Infants begin showing a spontaneous "social smile" around the age of 2-3 months, and begin to laugh spontaneously around the age of 4 months. Between ages two to six months of age infant express other feelings such as anger, sadness, surprise and fear.

Some of the emotions are love, surprise, fear, sorrow, pride, joy, shame anger etc. Emotional development is the ability to control and manage one's emotions. It is important to see that the early childhood of an infant should be surrounded by people who are emotionally mature and stable and are able to manage their emotions.

Development changes in social development from infancy to middle childhood:

**During infancy :** It is the development of a special bond (attachment) between the child and mother .It will be formed with other family members slowly.

**During early childhood :** The child learns to interact closely with his/her peer group. As the child grows, relations with the peer group becomes increasingly strong.

**During middle childhood :** A child enters into a formal school. He learns sharing and coping in a social system. The child learns group or social behaviour, relationships and demands more independence.

### Let us know

Help the child to develop healthy emotions. Some tips are given here to develop healthy emotions:

- 1) Practicing meditation
- 2) doing some exercise
- 3) practicing relaxation skills
- 4) using humour to release tensions

- 5) having some good hobbies
- 6) identifying solutions to situations
- 7) counting to 10 before reacting
- 8) careful thinking before reacting
- 9) having some personal space.
- 10) moving away from the stressful situation.

***Check your progress...***

- 1) What are emotions? How do they change with age?
- 2) How do senses help in developing cognitive development?
- 3) Raju is an arrogant person. Shiva is a calm and cool person. With whom would you like to do friendship? Why?

## 20.5 Language development

Language development in children is amazing. Language development in humans is a process starting early in life. Infants start without knowing a language, yet by 10 months, babies can distinguish speech sounds and engage in babbling.

Language is an important medium of communication. Interacting with others is very important for our day to day life. Children develop receptive language abilities before their verbal or expressive language develops.

There are four stages of language development in children :

Sl.No.	Stage	Age
1	Pre_ speech stage	0 to 6 months
2	Babbling stage	6 to 8 months
3	One word stage	9 to 18 months
4	Combining words stage	18 to 36 months

Language supports a child's ability to communicate, express and understand feelings. It also supports thinking, problem solving, developing and maintaining relationships. The first major form of communication of an infant is crying.

In the first year, babies develop many of the foundations of speech and language development. They keep on developing language skills at an amazing rate in the first three years of life.

**\* How to encourage early language development in children?**

- Talking frequently with child
- Giving response to child's words
- Discussing daily about different topics
- Inculcating reading habits

Children ask a lot of questions between 3 to 8 years of age. We should respond patiently and correctly.

- The ability to learn more than one language is called bilingualism. eg: Telugu, English etc.

Physical, cognitive, social, emotional and language developments, together can be termed as **overall development**.

## Key Points

- Growth and development is not equal in all the children.
- A child at birth does not have any teeth. They start appearing at six to eight months of age.
- Motor development in children refers to muscle development.
- Cognitive development means development of perception, memory, understanding, knowledge etc.
- Social and emotional development is the ability to establish positive and rewarding relationships with others.
- Language development in humans is a process starting early in life.
- Physical, cognitive, social, emotional and language development, together can be termed as overall development.

## Practice for learning outcomes

- 1) Differentiate milk teeth and permanent teeth.
- 2) How does the social and emotional development happens with age in infants?
- 3) What are the different stages of language development? How to improve langauge development in children?
- 4) Differentiate between ground motor skills and fine motor skills. Give some examples.
- 5) Suppose a child in your neighbourhood is not provided a healthy environment at home. What is the impact of an unhealthy environment on cognitive development of a child?
- 6) Teeth starts at the age of (       )
  - A) 3-4 months
  - B) 6-8 months
  - C) 7-9 months
  - D) 8-10 months
- 7) Example for fine motor skills. (       )
  - A) standing
  - B) writing
  - C) catching
  - D) drawing
- 8) Match the following :

i) Infant	(       )	a) 2 to 5 years
ii) Temporary teeth	(       )	b) 6 to 8 months
iii) Babbling stage	(       )	c) 1 to 3 years
iv) Toddler stage	(       )	d) Milk teeth



# **Growth and Development during Adolescence**

The period of transition from childhood to adulthood is called adolescence.

The boys and girls passing through this period are called adolescents. It is a crucial period during which an individual experiences a range of emotions.

Adolescence is a complex stage of our life. This is the period of confusion and transition. Around 1.2 billion people, or one in six of the world's population are adolescents aged 10 to 19.

- Adolescent is described as an important stage of life. Why?
- What are the changes observed in the period of adolescence?
- How do adolescents develop a healthy life style?
- How to overcome peer pressure in adolescence?

Let us know in this chapter.

## **Learning Outcomes**

**The learner....**

- ◆ Identifies the components which effect adolescent health
- ◆ Identifies the effect of hormones in adolescence.
- ◆ Applies the responsibilities in their effective personality development in daily life.

### **21.1 Adolescent period**

The World Health Organisation (W.H.O) defines adolescence, as the period of life between 10 to 19 years of age. During adolescence there is a rapid physical and emotional growth. Physical development, emotional development, social development, cognitive development are rapid in this stage. These changes are initiated by hormonal changes in the body.

### 21.1.1 Physical changes

The following physical changes take place in girls and boys during puberty, which means sexual maturity.

- i) **Increase in height and weight :** Growth takes place in adolescence at maximum pace. An individual reaches his/her maximum height during adolescent period only.
- ii) **Change in body shape :** Broader shoulders and wider chest develop in boys. In girls the region below the waist starts becoming wider to prepare the body to deliver the baby in future. Muscles of the body grow more prominent in boys than in girls.
- iii) **Growth of hair :** Facial hair, moustaches, beards, hair on the chest begin to grow in boys. Hair grows in the armpits and at the genital region in both boys and girls.
- iv) **Development of reproductive organs :** In boys, male sex organs like testis and penis develop completely. Testis produce sperms. Nocturnal emission is the release of excess semen from the penis during sleep. It is also known as 'wet dreams' or 'night fall'. It is a natural phenomenon in boys and they need not worry about it  
..In girls, ovaries enlarge and ovum begin to mature ovaries start releasing mature. Ovaries.
- v) **Change in voice :** The voices of boys become hoarse. The voices of girls become soft.
- vi) **Increased activity of sweat and sebaceous glands :** The secretions of sweat glands and sebaceous (oil) glands are very active at this stage. Because of this, pimples and acne are common.
- vii) **Enlargement of breasts :** In girls breasts begin to develop.
- viii) **Beginning of the menstrual cycle :** The first menstrual cycle begins at adolescence and is termed as 'menarche'. It is the sign of starting of release of ovary in female reproductive life. Menstruation is a cycle of 28 days which may vary from 21-35 days. Menstruation is a natural phenomena.

The sex organs by which children are identified as boys or girls at birth represent primary sexual characters. Physical characters like development of breasts in girls, growth of facial hair, moustaches and beards in boys along with the development of reproductive organs are called secondary sexual characters.

### 21.2 Social and Emotional development

- **What do you understand about social and emotional development during adolescence and the role of the peer group?**



Family is the most important social group for children, but relationships shift in adolescent periods. The adolescents struggle towards independence and try to establish their identity as individuals. They shift away from family and towards the peer group is normal. Although peers take on greater importance during adolescence, family relationships remain important too.

### Activity-1

Read the following check list. Put tick (✓) mark, which points reflect your behaviour.

#### Check list:

Behaviour	Yes/No
Prefer to spend more time before the mirror.	
Like to use perfumes.	
Do not want to listen to parent's suggestions.	
Feel only friends are correct, not parents.	
Want to be identified by teachers and peer group.	
Want more independence in taking decisions.	
Feel responsibility in work allotted at school, house.	
Like to take risks.	
Sometimes feels shy, sometimes feels confident.	
Have more self consciousness.	
Show more sensitivity towards others emotions.	

To make your future in a right way, you need to know more about adolescence. Seek help from your elders. You should know the different between good and bad. You are often inclined towards anything that attracts you. Ask elders and get your doubts or confusions clarified. These are all common in the phase of adolescence.

Social changes and Emotional changes show that your child is forming an independent identity and learning to be an adult. Family plays an important role in social development. During adolescence, social networks greatly expand to include many people and different types of relationships.

During this period an adolescent wants to connect to the society with his or her own identity. They want to be independent and ready to take challenges to prove themselves. Understands rules, culture, life skills which should be followed in the society. Hero worship is a common phenomenon. Attraction towards opposite sex, maintaining relationships with peers, using digital communications can sometimes lead to risks. Parents should be friendly with their teens and guide them at this stage. They should be encouraged to participate in family functions and social programmes etc.

However peers serve as an important source of social support and companionship during adolescence. Adolescents with positive relationships are happier and better adjusted than those who are socially isolated or have conflictual peer relationships.

### Adolescence : Role of Hormones

Following table shows a list of some endocrine glands and some of the hormones produced by them.

Sl.No.	Gland	Hormone	Effect
1	Testes	Testosterone	Formation of sperm, secondary sexual characters in male.
2	Ovaries	1. Estrogen 2. Progesteron	Formation of ovum, menstruation, embryo-implantation, secondary sexual characters in female.
3	Pituitary gland	1. Pituitary hormones like growth hormone 2. Follicle stimulating hormone (FSH) 3. Leutinizing hormone (LH)	Brings about general growth, stimulates other endocrine glands. FSH directs follicles for formation of ova or eggs, while in males directs testosterone to stimulate testes to produce sperms. LH causes the egg to burst out from follicle and flow into the fallopian tubes.
4	Adrenal gland	Adrenalin	Controls emotions

Endocrine glands secrete chemical substances known as hormones directly into blood. They perform several functions in the body like physical changes, development of reproductive system, menstruation, pregnancy etc... are under the control of these hormones.

### 21.3 Moral development in adolescence

**Mahatma Gandhi once said that we need to be the change we want to see in the world.**

Moral development can be defined as the way young people learn to decide what is right and wrong, which in turn forms the basis of the principles of justice.

When children are younger, their family, culture and religion greatly influence their moral decision making. Early adolescents have a great influence on peers.

In the early adolescent period, teens begin to think differently. This ability leads them to question rules and standards. By reaching the age of middle adolescent period, they began to develop their own moral code. As they move to late adolescence, they will develop their moral ideas.

## 21.4 Personality development of adolescents

Adolescence is a period of stress and storm. It is a crucial period of development. This development takes place not only in the physical appearance, but also in the personality.

Personality may be defined as the unique characteristics of a person in terms of behaviour, thinking pattern and feelings. There is a large impact of family, society, peer group, multimedia, other media (eg: mobiles) and environment etc. on personality development of adolescents. The personality development is both an individual and a social phenomenon.

### Social responsibility of adolescents :

#### • Is adolescence biological or social?

Strong relationships with family and friends are vital for adolescent's healthy, social and emotional development. Adolescence is marked by physical social and emotional changes. Understanding and guiding the adolescents is important to make them responsible for themselves, family, society and nation.

### Personal responsibility

- maintaining personal hygiene
- to concentrate on studies
- to stay away from bad habits and bad company
- to take part in co- curricular activities
- to seek help from parents, elders and teachers in crucial matters

### Responsibility towards family :

- to respect the elders and love the youngsters in the family
- to maintain peace and harmony in the family
- to look after the household responsibilities
- to make parents feel proud of themselves

### Responsibility towards society and nation :

- to adapt healthy habits and guiding peers
- to respect the values of society
- to participate in cultural and traditional programmes
- to volunteer the programs like Haritha haram, Swatch Bharat ,Organ donation etc., creating awareness among people.
- to create peace and harmony in the society
- to discard the negative taboos from the society

## 21.5 Peer group relationship

- **An adolescent without peer group is unimaginable. Why?**

As children enter into adolescence, the amount of time they spend with peers increases. Peer groups become the most important socializing influence on adolescent behaviour and values.

Acceptance by a peer group becomes so important, teens may modify their speech, dress, behaviour, choices, eating habits and activities in order to become more similar to their peers. This increased similarity among peers to provide them a sense of security and affirms their acceptance into their chosen peer group.

When teens modify their choices or behaviour to imitate or impress friends, they are answering to peer pressure. Peer pressure is often associated with negative outcomes such as skipping school, wearing unusual clothing, drug abuse etc. Some times the peer pressure can also exert a positive influence (Eg: education, job).

It is important to teach life skills at this age. Negotiation skill, problem solving skill, critical thinking skill, decision making, creative thinking, empathy, coping with stress and emotions, communication skill, interpersonal skill etc. help them to overcome peer pressure.

### *Check your progress...*

- 1) Write the importance of life skills?
- 2) Write the physical changes in boys and girls during adolescence.
- 3) How should be the relations with peers during adolescence?

## 21.6 Adolescents - Health

- **What are the factors affecting the health of adolescence?**

Cleanlines, physical exercise, balanced diet etc. show their impact on adolescents health.

### 21.6.1 Personal hygiene

A lot of physical changes and emotional changes happen during this age and in order to cope up with it physiologically and psychologically personal hygiene is necessary.

Some measures to maintain personal hygiene:

- Basic hygiene like washing hands before eating and after using the toilet.
- Covering the mouth when coughing, having regular baths, brushing teeth twice a day.

- Sweat glands become more active in adolescents and give body a distinctive odour. So it is better to take bath twice a day.
- Frequent bathing, cleaning of genital organs.
- Washing face with plain water 2 to 3 times a day may help to reduce acne and pimples.
- Girls need to take special care during menstruation. Taking frequent baths with warm water, using good soap, wearing clean clothes, frequent change of sanitary pads, proper disposal of pads are some of the steps to be followed to maintain menstrual hygiene.

### 21.6.2 Physical exercise

The physical activity leads to conditions of better health and sound sleep. All adolescent boys and girls should take a walk, playing games, walking in fresh air keeps the body fit and healthy.

Adolescence is a period when many changes take place in the body. Because of these changes one may get tensed, confused or feel insecure. One can overcome the above situations by doing regular physical exercise. Adolescents should not engage more time in watching television, using mobile phones and computers. They should not get habituated to video games.

### 21.6.3 Balanced diet

Adolescence is the stage of rapid growth and development, so adolescents should take adequate nutritious food. Diet should include requisite proportions of carbohydrates, proteins, fats, vitamins and minerals. Seasonal fruits should be included in the diet. Adolescents should avoid habits like consuming tobacco (cigarettes, gutkha etc). They should not take fatty foods.

Promoting healthy behaviour during adolescence and taking steps to better protect and people from health risks are critical for the prevention of health problems. In general, adolescents do not have a healthy lifestyle, which leads to health problems in future. Because the habits acquired in this period may track into adulthood.

To improve adolescents' health, it is important to promote healthy behaviour at an early age. The main behaviours associated with adolescents' health are physical activity, healthy diet, physical exercise, playing games, absence of tobacco, alcohol and drug consumption, engaging in multimedia unhealthy relationships, peer pressures, sleep deprivation etc. unhealthy habits such as alcohol, tobacco and drug consumption, unhealthy relationships, peer pressures, sleep deprivation, more time engaging in using multimedia should be avoided.

During the transition into adolescence and throughout it, there is an increase in desiring novelty, along with the courage and curiosity to experiment with new and often unhealthy behaviours.

Adolescence is a critical time to establish the foundations of a person's health. It is important to understand the behavioural practice during the transition from early to late adolescence. Adolescents should take the help of parents, elders, doctors & teachers to overcome adolescent problems.

Promoting healthy behaviours during adolescence, and taking steps to protect young people from health risks are critical for prevention of health problems in adolescents.

## Key Points

- The growth of reproductive organs is more in adolescent period (10-19 years)
- During the adolescence period there is a rapid physical, emotional, social & cognitive development.
- Hormones help in the development of secondary sexual characters and reproductive organs.
- One should take balanced diet for growth & development during adolescence.

## Practice for learning outcomes

- 1) What is the role of peers during adolescence?
- 2) What are the physical changes during adolescence.
- 3) What measures are to be taken by adolescents to maintain personal hygiene?
- 4) Sandeep was forced by his friends to smoke. He does not offend his friends and risks his friendship. However he does not want to smoke. Which life skill helps Sandeep to overcome this situation?
- 5) Choose the wrong one. ( )
  - a) Malini can play outdoor games during menstruation.
  - b) Nocturnal emissions happens in boys which is a guilty thing.
  - c) All girls should have iron rich diet.
  - d) Genital hygiene is important for both boys and girls.
- 6) Match the following :

i) Testes	( )	a) Growth hormone
ii) Adrenal gland	( )	b) Testosterone
iii) Pituitary gland	( )	c) Estrogen
iv) Ovaries	( )	d) Adrenalin



# Caring for the Family

The family plays an important role in the life of each and every individual. A family provides unconditional love, care and support to all its members. We should appreciate this and not take our families for granted. One should follow the values and customs of the family. Family takes the responsibility in taking care of the family members.

- **How do you appreciate your family when you are brought up?**
- **Mention the problems faced by a family in the brought up of a child?**
- **How to take care of family members?**

## Learning Outcomes

### The learner....

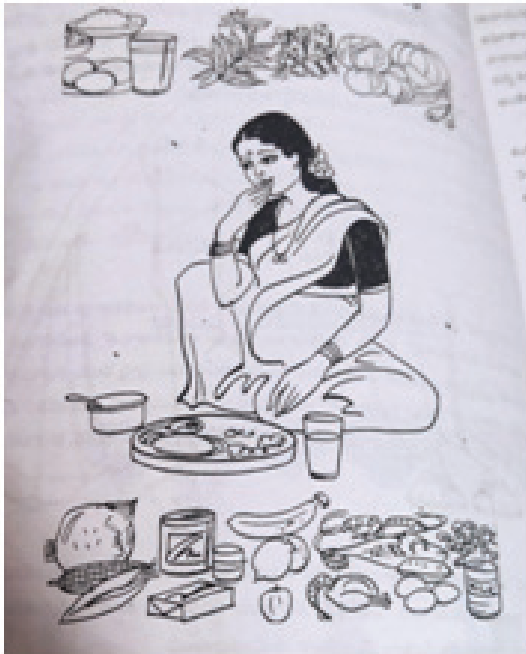
- ◆ Identifies the role of family in taking care.
- ◆ Explains about the methods of caring of infants, elderly people, sick people, pregnant women in the family.
- ◆ Explains about life skills.
- ◆ Appreciates the role of family in transferring and adopting the values of a society.

## 22.1 Care During pregnancy

Becoming a pregnant and giving birth to a child is said to be a second birth or rebirth for the women.

A lot of physical, hormonal and emotional changes make a woman, a little stressful during pregnancy. It is the responsibility of family members to take care of a pregnant woman.





During pregnancy, a family should ensure that

- the pregnant women should eat sufficient nutritious food at frequent intervals.,
- she should take adequate rest and follow elders and doctors precautions.
- a pregnant woman should be happy and cheerful
- she should do suitable exercise with family members help.
- she should visit the doctor regularly for monitoring the growth of the foetus
- a pregnant woman should immediately get treatment for any problems that might be detected

The nine months of pregnancy, childbirth followed by the first year of child care can be quite exhausting for the parents, especially for the mother. Some new mothers in your family gets tired because of the odd hours, when the baby keeps her awake and occupied. The family members should help in such situations.

How do you help as a family member in such situations?

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## 22.2 Care during infancy

The human baby is totally dependent upon parents and family for care and protection. Feeding, loving, clothing, bathing and vaccination are the essential tasks to be performed with love for the infants.

Mother's breast milk is the best and correct food for the infants. They need to be breastfed by the mothers, because it is very important for the child. Breast milk is the healthiest food fulfilling all nutritional requirements of a child. It serves as an immunity booster through out life. Mother's feeding should be done till the baby is 6 months old.



Immunization saves children against certain life-threatening diseases (example: Polio vaccine, MMR, BCG vaccine etc.). The vaccination should be done according to the immunization schedule.

Providing clean clothes, environment and timely feeding is the responsibility of the family. Bathing of the child is also to be guided by following doctors guidelines the elders of the family.

Some studies have found that non parental care experiences appear to lessen links between child \_ parent relationships and child development.

If both parents are working, the elders or an alternate support system should take care of the baby for their proper development.

#### **Give some suggestions in such a case?**

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Government sector is providing maternity leave, paternity leave and child care leave for the parents to look after the child .Private sector should consider this for the better growth and development of the child. Apart from this the parents can consider the following alternatives:

- 1) Grandparents or relatives and friends can take care of the baby.
- 2) Neighbours/ friends mutually helping each other
- 3) Employ someone to stay at home and look after the baby
- 4) Join put the child in a day care centre or creche.

We should provide a good environment for the healthy growth of the child. If the option is creche or daycare centre, it should be in a clean, open and well ventilated place, run by qualified, dedicated and capable people. It should be near the house or workplace of either of the parents.

If someone is employed to provide care at home, the background of the person must be verified. The person should maintain personal hygiene, capable of handling a baby and has a caring and loving nature.

## 22.3 Care of young children

- Is the child's development on track?

There are several factors that influence the growth and development of young children. Growth and development of a child is influenced by two factors : heredity and environment.

- Heredity or genetic factors cannot be changed as they come by birth.
- Environment plays an important role. Make sure that the environment provided to children is ideal as much as possible.

**i) Early stimulation :** It can be achieved by providing stimulation in early years of life. A child starts talking early, if the mother talks often to the infant.

**ii) Play :** Environment also holds facilities for play. The cognitive development is faster, if the child plays and interacts with other children. Play helps to develop physical, social, emotional, language and moral aspects of the child at the age of three to five years, children imitate adult roles or develop their own stories to play. It is therefore very important to see that adults should be role models to children around them.

Toys for children must be safe, inexpensive, durable, interesting, attractive and eco-friendly.

Older children while playing board games and other outdoor games with other children learn cooperation, sharing, taking challenges, team spirit, competition, leadership etc.

Indulging in this kind of activity helps them to learn about social settings, rules and norms, sharing values etc.

- **What types of games do you like to play?**

**Self discipline :** A family should ensure that infants should be well habituated. It is a part of caring for the family. Parents become role models in order to inculcate good habits in the children. There are generally three parenting styles.

**i) Autocratic disciplining style :** Where emphasis is laid on restriction and punishment to follow parent directions. Parents do not allow verbal exchanges. So the 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 arguments. The parents are warm and open towards the children. Children of such parents are socially well-adjusted, responsible and are usually self confident.

iii) **Permissive disciplining style** : Parents are totally involved 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.

- List out the strengths and weaknesses of the above three parenting styles.
- How would you like to bring up your children when you become parents and why?

Each child is unique and different. It is important to accept them as they are. It is the family's responsibility to encourage their natural talents, interests and guide them in a proper way. Parents should not impose their own aspirations on the children.

## 22.4 Caring for older children

### The school going child

As the child grows, he / she requires little support for eating, bathing etc. The roles and responsibilities of parents / family change when the child starts going to school. The child gradually starts moving towards independence. The child requires support in academic tasks (to do homework, to study and learn). Though school takes over a part of responsibility, parents need to cooperate and should take responsibility to supervise and support the child in studies.

Children at this age also love to play group games indoors or outdoors. The family and school should provide facilities to play.

- **What games can be played at this age?**
- **How do games would help the children?**

Children at this age grow fast. They require a balanced diet for their growth. Both the school and parents can help children to develop healthy food habits. Family should take care in providing balanced diet to children.

### *Check your progress...*

- 1) How should we take care of infants?
- 2) Write the rule of family in caring of infants.

## 22.5 Caring for Adolescents

The age of 10 to 19 years is considered as adolescence. They strive for independence at this age. Peer influence is more at this age. They want to take their own decisions and attempt to build an identity of their own. Adolescents tend to challenge existing values and behaviours. Parents often find such situations difficult to deal with.

Adolescence, a period of stress and storm to be dealt very carefully. It is important that parents should have a friendly approach while disciplining adolescents. They should be democratic,

flexible, adaptive and provide emotional support while dealing with their adolescents children. Trusting them is very important.

Parents / family must learn to listen to the concerns of the teenager, suggest alternatives/ solutions to their problems. Displaying confidence in the adolescent helps to reduce the generation gap and also strengthens family bonds. Educate them about body changes that occur during this period. Assign responsibilities to them. If they do good work, appreciate.

It helps the adolescent to gain confidence and gives them a feeling of importance. They need help in choosing the right profession. They should learn to respect the opposite sex. Help them to develop their skills. Adolescent give more importance to peer group than family. So a family should take more care during this stage for their proper development.

- **Give some suggestions for healthy adolescent life?**
- 
- 

## 22.6 Settling grown up children

The important developmental task of adolescence is preparation for their profession or vocation. They need help in choosing the right profession. Young people feel anxious and worried about this. Grown up children should be aware of tough competition to get a good, secured job. Parents should take responsibility to guide children in this regard.

Preparation for a career should start early. Vocational guidance is offered in many schools. There are new course options available for young people to choose today. There are also many channels of information to guide themselves in the preparation required for a career. A family should give support for grownup children while choosing career or occupation. This is very important part of caring.

- **What is your future goal?**
- **Which career do you want to choose? Why?**

## 22.7 Caring for the elderly

Grandparents are an asset for the family. What is your opinion?

- How much do you care for your grandparents?

Old age is one of the stages in life cycle. Ageing is a natural and normal process of growing up and hence affects the body and causes decline in energy and all the abilities. The challenge is to accept aging as a normal process.

They should gracefully, take care of themselves, slow down their pace they should do work based on their capability.

It is the responsibility of family members to look at the elderly people in their family. The elderly people should have financial freedom. Regular health checkups and medication should be given to elderly people. The family members should show love and affection, help them and share the happy moments. It makes them feel happy. It is very simple to follow the few tips given below.

- spend time to make them feel comfortable
- provide moral support by being with them
- involve them in decision making
- encourage them to take care of themselves
- respect their views and opinions

However elderly life can be stressful also if they are not cared for their financial and physical well being.

- **Give some suggestions for the well being of elderly people?**
- 
- 

## 22.8 Caring for the sick in the family

Sickness weakens the body. To gain strength and get well quickly, special care is needed. The care, a sick person receives from a family is frequently the most important part of his or her treatment.

Taking medicines is often necessary, but good care and support of family members is always important. A sick person needs love and constant support.

- **Why should we take care of the sick people?**

A person who is sick should take rest in a quiet, comfortable place with plenty of fresh air and ventilation. Everyone just needs to learn the basics of first aid. During the COVID-19 pandemic, telemedicine came into live. The patients are more comfortable at home and are able to recover soon.

It is very important to keep the sick person clean everyday. The sick person's bed sheets, clothes, travels must also be bleached, washed separately in lukewarm water and kept clean. If they are too sick to get out of bed, use a sponge or cloth with lukewarm water to wipe them.

Provide fresh and nutritious food to the sick person in time. If necessary, mash the food or make them into soups or juices. A person should drink plenty of liquids. Medication should be given time to time. A sick person might have less appetite, so give easily digestive food accordingly

with the doctors or elders guidance. Medicines and treatment are necessary for the well being of a sick person along with family members support and caring.

### *Check Your Progress...*

- 1) How does a family takes responsibility in settling grown up children?
- 2) How do you take care of sick people in the family?

## **Key Points**

- The family plays an important role in giving care at different stages of life of each and every individual.
- Caring for the family members is responsibility of each and everyone.
- Care should be taken during infancy, childhood, adolescence and pregnancy. Elderly people and sick people should be given most importance and care in a family.
- Settling of grown up children is also an important role of the family.
- Family relations depend on the way every member interacts with each other.
- Caring for the pregnant woman infants, adolescents, sick people, elderly people is the responsibility of each and every member of the family.

## **Practice for learning outcomes**

- 1) How do you take care of pregnant women in your family?
- 2) What are the important aspects in caring of adolescents?
- 3) How does the games help the children?
- 4) What are the facilities in your neighbourhood to play outdoor games?
- 5) What are different parenting styles?
- 6) Compare the environment for growing children in nuclear family with that of a joint family
- 7) When both parents are working, how and who will they take care of the child?
- 8) Write about democratic disciplining style?
- 9) Choose the wrong one
  - a) discipline at home is very important ( )
  - b) family members should take care of children ( )
  - c) play is not important for the adolescence ( )
  - d) democratic disciplining style helps children in overall development ( )
- 10) Matching :
  - i) School going children ( ) a) Should be under the supervision of doctors
  - ii) Pregnant woman ( ) b) Needs support in home work
  - iii) Infant stage ( ) c) Life skills should be developed
  - iv) Adolescents ( ) d) Totally dependent on family





# Family Resources

TOSS annual examinations time table has been announced and you must attend the exams. Think that your sister's wedding is also scheduled in the same month-end. You need to perform certain responsibilities related to marriage. What type of food to be served? Whom to be invited? place for the wedding and many more tasks should be decided by all the family members.

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:

- **What are the plans needed to achieve more goals at the same time?**
- **What are the factors to be considered in the implementation of plans?**
- **How family resources contribute to the implementation of our plan?**

## Learning Outcomes

**The learner....**

- ◆ Explains the process of setting goals in the family individually.
- ◆ Identifies the different type of goals set by the families.
- ◆ Classifies resources as human and non-human required for goal chasing.
- ◆ Applies the knowledge to efficient use of family resources in daily life.
- ◆ Explains about the usage of resources and steps involved in management process.

## 23.1 GOALS

Observe the following situations

- Radha wants to become a doctor
- Ramesh wants to pass an examination

- Your Father wants to buy a new car/scooter/cycle
- Your mother wants to cook a special dish for the family
- You want to visit your friend's house on Sunday

These are targets or aims which they want to achieve. **These aims are known as goals.**

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.

Think of some of the goals which you have been able to achieve. 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.

## 23.2 RESOURCES

Observe the following

Goals	What you need or what you will do to get what you want
To do agriculture	Land and money
To buy a mobile	Money
To go to watch a movie in theatre	By Walk or go by vehicle
Wants to build a house	Acquire Land and money
To video space record a birthday party	Camera
To pass an examination	Gain Knowledge and books

Some elements are needed to achieve these goals.

To achieve the goals mentioned in the above table we need money, land, camera vehicle, knowledge, etc., 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-1

Make a list of any five 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.

Sl.No.	Goals	Resoruces Required
Example	Pass Class 10 examination	books, time to study, Learning material, money
1		
2		

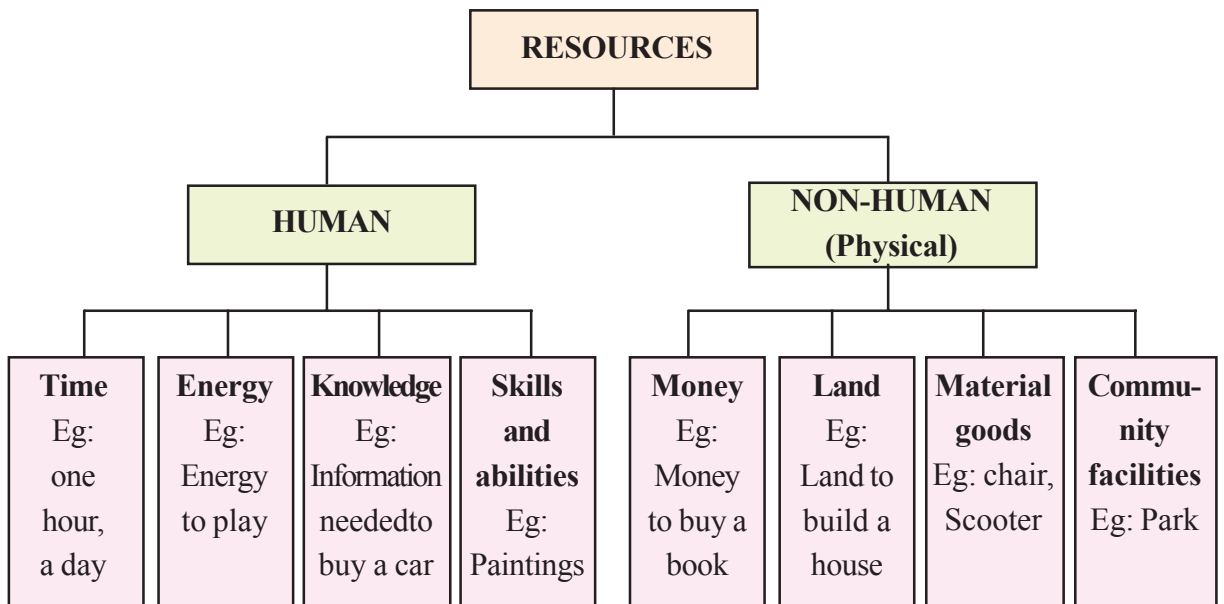
### Check Your Progress...

- 1) What are the requirements for the achievement of goals?
- 2) Write any two goals and write down the resources required to achieve them.

## 23.2.1 Types of resources

Human resources are the inner abilities or strengths of individuals. Resources like energy, knowledge, time, skills etc. are classified as human resources.

Community facilities like parks, hospitals, market, library, buses, roads and schools are called social resources. A table, chair, gas stove, clothes etc. are known as '**non-human resources**' (or) physical resources. Some of these physical resources are available to everyone.



All members of the family are human resources. All the household things come under physical resources. We use these resources to achieve certain goals in human life and family life.

Each person in the family should identify the other person as resource.

### Activity-2

1. List the various community resources that you and your family use to do various activities.

## 23.2.2 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. 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.
- Family resources should also be considered and utilized.

### 23.2.3 Efficient 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? All tasks are important and unable to minimize when you need to do compulsory. If you reduce your goals may not be fully fulfilled. The only alternative left with you is to plan the timeschedule 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. Goals can be achieved by making efficient use of the human and physical resources of the family in such situations.

#### *Check Your Progress...*

- 1) Give two examples to human and non-human resources.
- 2) Write the guidelines for utilization of resources.

## 23.3 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 '**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 and using transport facilities for their work.
- Parents are using their time and knowledge to think and organize the trip.
- 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 these activities in order to be able to make this trip a success. For this family members and other materials are used as resources.

**Management is a process of controlling / organizing whatever we have (resources) to achieve, what we want (goal).**

### 23.3.1 Steps in management process

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 different steps in Management. There are mainly four steps of management-**

- Planning, Organizing, Implementing, Evaluating

\* **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.

Planning 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.

Ex: Designing a plan to have a birthday party.

\* **Organizing :** When you plan, you have to decide,

- Who is to do what?
- How the activities are to be done?
- When the activities are to be done?
- What will you need (the resources) to carry out the plan?

**Organizing means fixing responsibilities and collecting or assembling resources needed to carry out a plan.**

\* **Organizing if it happens properly it ensures :**

That all the work gets done. There is equal distribution of work. Work gets finished on time. 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 overburdened either; that is, there is fair distribution of work.

Ex: Organizing the plan designed for birthday party.

\* **Implementing** : Implementing is also known as putting a plan into action.

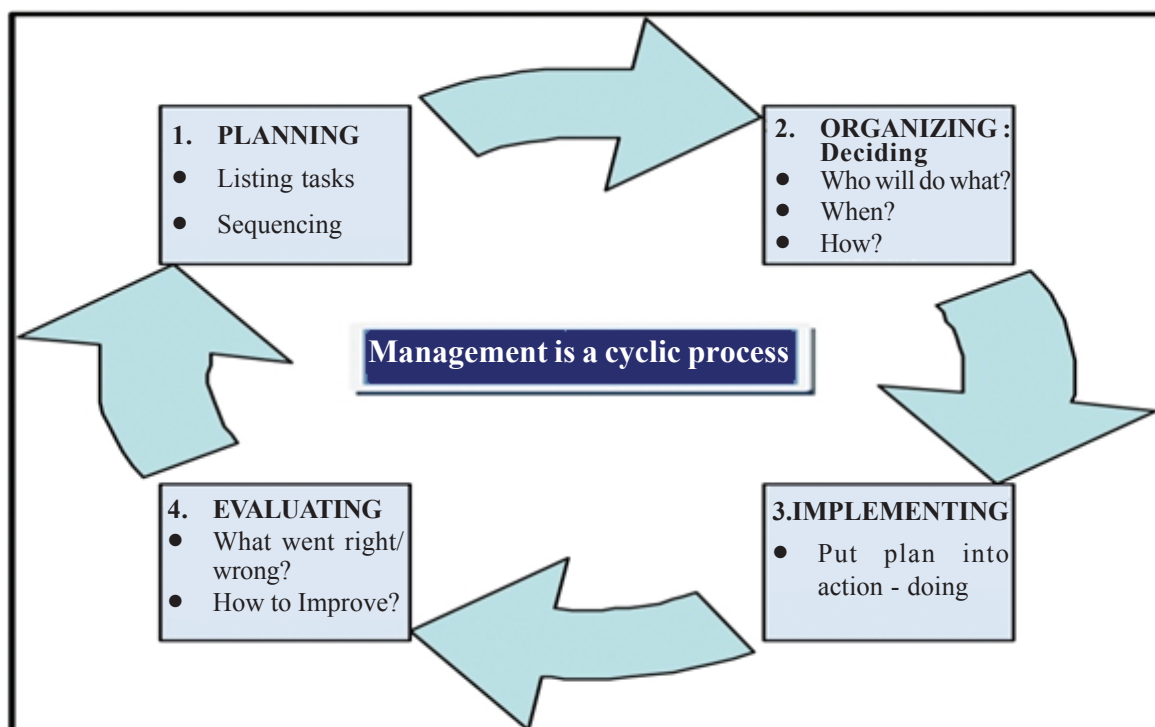
The activities done in order to carry out your plan come under the steps of implementation. Implementing means carrying out the actual activities as planned and organized earlier. While implementing the plan, you have to check the progress of your plan.

Ex: Celebrating the birthday party according to the plan.

\* **Evaluation** : Evaluation means examining the progress of your plan to find out any shortcomings and take appropriate measures accordingly. For example, reviewing and assessing whether everyone is able to taste the meal after party. The implementation of any plan must be evaluated.

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.

Every person in the family is a resource. Every household item is a resource. Family life goes on smoothly and happily by identifying the human resources and physical resources of each family and making full use of them.



### *Check Your Progress...*

- 1) Explain different stages of management process.
- 2) What are the things to be decided while planning?



## Key Points

- 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 namely-planning, organizing, implementing, evaluating and these are related to each other.

## Practice for learning outcomes

- 1) What is the relationship between goals and resources?
- 2) Give examples to human and non-human resources.
- 3) What is the importance of planning? Prepare a plan for any one event.
- 4) Explain the steps in management process.
- 5) Identify the non-human resource from the following. ( )
 

A) Drawing skills	B) Capacity of talking fluently
C) Money need to purchase a car	D) Energy need to do work
- 6) Which of the following is not the stage of management process? ( )
 

A) Planning	B) Organizing
C) Evaluating	D) Resources
- 7) Match the following :
 

i) Planning	( )	a) What went right / wrong
ii) Organizing	( )	b) Identifying resources
iii) Implementing	( )	c) Allotment of responsibilities
iv) Evaluating	( )	d) Completing as per planning

# Management of Time and Energy



Time is more precious. Every person looks at the time for completion of every activity. We perform many activities in a day. Some of the activities like cooking, exercising, professional works, 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.

The capacity to do the work is called energy. Every activity is related with the energy. 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. Some people say that they are tired of work, even though it's a small activity to complete within a short period. There are many things in the family that need to be done to the best of their abilities at the fixed time. So we will learn in this chapter how time and energy is managed.

- Why time is precious?
- Why 24 hours is not enough to complete our activities?
- How time and energy are interlinked?
- How do we use our energy to complete our work on time?

## Learning Outcomes

### The learner....

- ◆ Explain the meaning and importance of time and energy as valuable resources.
- ◆ Identifies the role of a time plan for effective utilization of available time.
- ◆ Suggest ways to save time and energy.
- ◆ Explains the role of multi tasking in time and energy management.
- ◆ Explain the concept of work simplification and its usefulness in the conservation of time and energy.
- ◆ Evaluate their work by simplification methods at home.

## 24.1 TIME AND ENERGY AS RESOURCES

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.

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.

## 24.2 TIME PLAN/ SCHEDULE

Designing and implementing plans effectively helps in utilising resources. 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 we are 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.**

For Example You have 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

**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.

## 24.2.1 Steps in time-planning

- i) **Listing all the activities :** List all the activities that you have to perform on a particular day including your regular daily activities also.
- ii) **Grouping flexible and inflexible activities :** Separate the activities into two groups. Those which are flexible means which can be done at any time. The other set of activities are those which are inflexible, means the time for performing these activities is fixed and cannot be delayed or changed.
- iii) **Estimating time required for performing each activity :** In the list whatever activities you have prepared allot approximate time required for performing each activity.
- iv) **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. Balancing is the adjustment of time for each of the activities. Reducing time from some activities can help in balancing the total time needed.

### *Check Your Progress...*

- 1) Give some examples to flexible and inflexible activities.
- 2) List out the steps of making a time-plan.

## 24.2.2 Point to be kept in mind while making a time plan.

- Make a time schedule which you can easily follow.
- Make a time schedule which is practical and flexible and can be changed easily in emergencies.
- Think of an alternative plan of action for emergency.
- Allow for rest and leisure time activities.
- Multi tasking for better time utilization of time. (**Multi tasking is the ability to do two or three activities at the same time.**)

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 are inflexible. The other activities can be done according to her convenience as they are flexible.

**Table- An example of a time-plan**

5.30 a.m.— 6.30 a.m.	Wake up, freshen up
6.30 a.m.— 7.00 a.m.	Wash clothes
7.00 a.m.— 8.30 a.m.	Prepare breakfast and start cooking lunch

8.30 a.m.— 9.00 a.m.	Dress the child and send to school
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. — 11.45 a.m.	Rest
11.45 a.m. — 12.45 p.m.	Study
12.45 p.m. — 1.00p.m.	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.—4.30 p.m.	Shop for daily needs
4.30 p.m.—5.30 p.m.	Help child to do homework
5.30 p.m. — 6.30 p.m.	Prepare dinner
6.30 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
10.00 p.m.—5.30 a.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.

- Family time plan.

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-1

Use the time plan given in Table 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*

### 24.2.3 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.
- 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 fallen ill.

How time can be saved?

We can save time by-

- making time plans and following them strictly.
- not wasting time.
- using labour saving equipments. With these equipments time and energy can be saved.
- doing two or more activities at the same time which is called as dovetailing of activities.

- 1) Observe your mother performing her household activities 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.

### 24.3 ENERGY SAVING

Energy saving is also an important task to complete all the activities in a time schedule. When more energy is consumed for few activities only then it's difficult to complete the remaining activities. During the day, we all do different types of activities which require different amount of energy. These activities are grouped into three categories based on energy consumption.

- 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.
- iii) Light activities like reading, watching T.V. and listening to music need very little energy.

#### *Check Your Progress...*

- 1) Explain multi tasking an example.
- 2) What are the advantages with time plan.
- 3) Write any two flexible and inflexible activities of your daily life.

### Key Points

- Making use of available resources efficiently in a way that we get our work done is called the management of that resource.
- A time plan is an advance plan of what we are going to do in a given time period.
- Steps in time-planning : Listing all the activities, grouping flexible and inflexible activities, estimating time required for performing each activity, balancing.
- For efficient use of your time prepare an easy, practical and flexible time schedule in advance while planning.
- Multi-tasking is the ability to do two or more activities at the same time.
- Energy saving is also an important task to complete all the activities in a time schedule.

### Practice for learning outcomes

- 1) What is a time plan and write the advantages of preparing a time-plan?
- 2) Write about the steps in time planning?
- 3) Differentiate between heavy, moderate and light work. Give one example of each.
- 4) Why is more important to categorize activities of work?
- 5) What type of problems may arise if you do not make a time-plan?
- 6) What do you understand by the term multitasking and how does it help to save time?
- 7) Explain about the relationship between time and energy with an example.



# Managing Family Income



Food, shelter and clothing are basic needs of a human being. To fulfil these basic needs, to buy anything, we need money. Your parents work hard 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 and clothes. You can stitch clothes at home, take tuition, repair household gadgets, do typing to meet their additional needs with this extra money.

- From where can we get this money?
- What are the sources of income?
- How will you utilise your income?
- How will you plan to reduce the expenditure?
- How can one save their income?

## Learning Outcomes

### The learner....

- ◆ Identifies the sources of family income.
- ◆ Differentiates the family income, expenditure and savings.
- ◆ Develop a budget for family and implement in their daily life.
- ◆ Explains the characteristics of good budget.

## 25.1 Family Budget

Different families handle budgeting and money management in different ways. Yearly, monthly or weekly picture of what you need to spend and what you have left over is the general goal of a family budget.

A family budget is a record of what you earn and spend.

A family budget will help you:

- spend your money wisely on the things you must have - these are your **needs**
- save money for the things you like, but can live without - these are your **wants**
- set aside money for unforeseen expenses - for example, if your car breaks down and needs repairs
- stops accidental overspending.

What is the importance of budgeting?

Budgeting can help you and your family take the first step towards control of your money. It can also help you avoid debt. And it lets you get on with being a family, rather than spending too much time worrying about your finances.

## 24.2 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. Income is used to fund day-to-day expenditures.

### Sources of Income

Families have various types of income, sources.

- Income can be salary from a job, pension.
- Profits in business.
- Rent from a house or shop.
- Self-employment.
- Selling of agricultural products.
- Interest received from bank or sale of shares and other investments.
- 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 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. Money can also be saved by using free facilities like medical facilities, free education for Children or rent free accommodation.

- **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.**

## Activity-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.

### 24.3 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.

Family spends income for family members on food, housing, clothing, education, transportation, medical expenses, entertainment etc. This is called 'family expenditure'. The list of expenses can be short term expenses or long term expenses. The grocery we get every month comes under short term expenditure and the money borrowed to construct a house comes under long term expenditure.

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-2

Make a list of your immediate needs (short term expenditure) and needs which can be fulfilled at a later date (long term expenditure).

### 24.4 SAVINGS

A part of family's income which is set aside for future use is called as saving. Savings 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 to buy luxury goods etc.

**Saving is the money set aside by the family for future use**

### 24.5 NEED FOR MANAGING INCOME

To use income properly a plan must be devised according to income and expenditure. 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 every family must 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.

## 24.6 SPENDING PLAN (BUDGET)

It is actually a list of requirements of all the family members, with the money allocated for each item to fulfil their needs. To be able to do this you must also know the income of a family.

- Why should we 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)

- Keep your expenditure less than the income, in order to save money.

Expenditure < Income ————— Saving. (< means less than)

To avoid getting into trouble, make your own spending plan.

### 24.6.1 Factors of expenditure

Each family has its own needs which are different from those of other families. How much a family spends on the different items depends on many factors.

Let us now consider these factors.

- 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.
- 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.
- Age of family members** - If there are school going children, expenditure on education, school uniform, stationary etc. will be more.
- 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.
- 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.
- Savings** - Money is to be saved keeping in mind the future needs.

## 24.6.2 Points to be remembered while devising a budget

Use the following steps to make your spending plan :

- Keep in mind all the income and facilities available to you for the period for which you are making the spending plan.
- List all the requirements (commodities and services) needed by the family members for that period.
- Prioritize your needs such as wants, facilities, luxuries.
- Allocate funds keeping in mind the total income. This will help in effective utilization of money and other resources.
- Balance the spending plan. This will also help to save some money.

## 24.6.3 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.

**Table : 1 Details of expenditure and savings of a family**

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>

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.

### 24.6.4 Balancing the spending plan

While making spending plan, 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

Increasing income	Reducing 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, electricity, water.</li> <li>• Cut down on eating outside.</li> <li>• Ironing and washing at home.</li> <li>• Economic use of stationary i.e. paper, pencils etc.</li> <li>• Use of public transport or cycle.</li> <li>• Use of public library instead of buying books.</li> <li>• Looking out for sales/ rebates and places where prices are comparatively lower, Shop in one trip.</li> <li>• Avoid impulsive buying and items which are not necessary.</li> </ul>

These are some of the ways by which you can help supplement for family income. Therefore the best budget is where income and expenditure allocation is balanced.

### 24.6.5 Expenditure record

- Discourages 'impulsive buying' i.e. keeping away from buying what you really do not need at a particular time.
- Expenditure record helps you to meet all the needs of all your family members. For this make a list, allocate money for each item and then spend according to the spending plan.

Record of expenditure 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
- to stop impulsive buying

The table below will give you an idea of how to keep a record of expenditure each month.

**Table 2**

**Record of expenditure**

Month \_\_\_\_\_ Year \_\_\_\_\_

Sl.No.	Activity	Weel 1	Weel 2	Weel 3	Weel 4	Total
1	<b>Food</b> 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 shoes / chappals / sandals socks, handkerchiefs undergarments school uniforms					



Sl.No.	Activity	Weel 1	Weel 2	Weel 3	Weel 4	Total
4	<b>Education</b> school fees books, stationary etc.					
5	<b>Household bills</b> electricity bill water bill any other					
6	Medical expenses 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					

## 24.7 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.

### *Check Your Progress...*

- 1) What are the differences between income, expenditure and savings?
- 2) What are the things to keep in mind while making a budget plan?
- 3) What factors does the family expenditure depends on?

## 24.8 Money management

Now you must have understood the importance of managing money as it is an important resource. Family members work very hard to earn money. It should not be wasted. You must manage the money you get as pocket money. Also help your parents understand the importance of money management and help them in preparing a budget.

### 24.8.1 Working out what you spend

One of the hardest things about making a budget and managing money can be keeping track of what you spend.

Spending can be regular (fixed expenses) or irregular or once-off (variable expenses).

Here are some of the **fixed expenses** you might want to include in your family's budget:

- house repayments or rent
- utilities - gas, electricity, water, phone and internet
- school, tuition, college fees
- health, car and household insurance
- credit card and personal loan repayments.

Here are some of the **variable expenses** in your family's budget:

- food
- home maintenance and household goods
- school uniforms, textbooks and stationary
- medical expenses
- car repairs and petrol
- public transport
- personal items like clothing and haircuts
- entertainment
- other things like gifts and special treats for you and your family.

## 24.8.2 Savings plan

Your budget will tell you whether you're currently spending more or less than you earn. If you're currently spending more, a simple savings plan can help you spend less. And if you're already spending less than you earn, a savings plan will help you put some of your leftover money aside for unexpected expenses, emergencies and long-term goals.

You can sit down together as a family and look at how you can save. For example, can you spend less on certain items? Do you have any high-interest credit cards or other loans? Could you pay these off as soon as possible and look into more suitable credit or loan options?

Here are some tips to save money :

- **Build a savings buffer :** Before you start saving for your wants, you could keep extra savings for financial emergencies. For example, you could aim to keep some money in a separate savings account. You can use this money for unexpected or emergency expenses, which can help you avoid going into debt.
- **Decide what you're saving for :** Decide the purpose of saving in advance.
- **Set a deadline for your goal :** But be realistic, and you will avoid feeling pressure.
- **Open a fee-free bank account :** which is separate from your main account. You can use this account only for saving towards your goal. You can set up a direct debit from your main account to regularly transfer a set savings amount.
- **Look into other options :** like asking your employer to split your salary payment, so some of it goes into your separate savings account.
- **Speak to your bank, financial institution or financial adviser :** if you want more advice.

Once you've come up with a savings plan, it's a good idea to **review the pros and cons before you start**. This way you'll know how it'll affect your family life. If there are parts of your plan you're unsure about, seek advice or double-check your calculations before you go ahead.

### *Check Your Progress...*

- 1) Discuss about the tips to be followed for money management.
- 2) Discuss about the fixed expenses of your family.

## Key Points

- A family budget is a record of what you earn and spend. Budgeting can help you and your family take the first step towards controlling your money.
- 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.
- Spending plan is actually a list of requirements of all the family members, with the money allocated for each item to fulfil these needs.
- Spending plan helps you to meet all the needs of all your family members.
- Saving is the money set aside by the family for use in times.
- The characteristics of a good budget are; accurate estimates of income, accurate estimates of expenditure, reasonably accurate allocation of money, flexible.

## Practice for learning outcomes

- 1) Explain about direct and indirect income.
- 2) Give any five points highlighting the importance of 'Family Spending Plan'.
- 3) List the characteristics of a good budget.
- 4) What are the things do you keep in mind while devising a family's spending plan?
- 5) Define the term .spending plan. and explain the factors on which the allocation of money on different items is decided.
- 6) Choose the correct option from the choices given to complete the statement.
  - i) Income means ( )  
A) money      B) house      C) furniture      D) all the above.
  - ii) Family income means ( )  
A) income of all related persons living in the household  
B) commodities and services produced in the country  
C) right to consume goods and services  
D) all the above
- 7) Which of the following is not a charactoriestics of good budget. ( )
  - A) Flexible
  - B) Accurate estimates of expenditure
  - C) Reasonably accurate allocation of money
  - D) Lack of planning



# Savings - Investment

Kiran is working in a company as a clerk. He is earning Rs.25,000/- per month. He is living in a rented house with his wife, two children and his old parents. He saves Rs. 2,000/- per month after, all their monthly expenses. Every month, by saving some amount from his salary he could save a sum of one lakh rupees. Searching for additional income sources, he invests his savings in real estate, with his friend's advice. He could gain double profit by investing in the same.

- How did Kiran save his savings?
- What did Kiran do to get additional income?
- If you were in place of Kiran, What would you do to get additional income? Why?
- What is meant by investment?
- Why do we need to save?
- What can we do with this savings?

## Learning Outcomes

### The learner...

- ◆ Identifies the importance of savings.
- ◆ Explains the benefits of savings.
- ◆ Explains the ways to increase the additional income sources.
- ◆ Explains the about Investment.
- ◆ States different types of investments and gives reasons for choosing that particular type of investment for investing.
- ◆ Applies the knowledge of the importance of savings and investment in their daily life.

In the previous lesson, you learned that money earned by a family is called income and the money that a family spends to sustain life is called an expenditure (expense). This is an impossible task to tell that all families should spend the same amount for their needs. Because no two families can continue with the same needs and the same cost. Eg: Anita and Praneetha have the same family income but Anita's family has a brother and a younger sister who goes to college. So their family will have to spend more money for their children's education. Praneetha is the only child who goes to school, so Praneetha's family does not have to spend much money on education. So Praneetha's family is able to spend more on entertainment. It is also possible to save some money. Most families spend money within their income limit. Some money is hidden for future needs. This hidden money is called 'savings'.

## 26.1 Savings

In your home you will find people spending money on clothes, food, rent, school fees, college fees, travel expenses, and many other things.

In addition to these expenses, you need to set aside some money for your future income. This is called saving.

Darshan is a shopkeeper. His monthly income is Rs.10,000/-.He lives with his wife, two children and an elderly mother. His wife spends money on family for necessities. But every month she is able to set aside a small amount. This remaining money is called 'savings'.

## 26.2 Need for savings

It is necessary to save money for the following purposes.

- i) Special needs for family,
- ii) In emergencies,
- iii) In old age after retirement,
- iv) To make life comfortable.

**i) For family special needs :** Family needs vary over time. The family has many responsibilities. For example, the family may spend a lot of money on cooking utensils, appliances, cell phones, etc. Sometimes it will cost money for medicines. Children spend more on their higher education as they grow older.

**ii) Emergency situation :** No one knows when any unfortunate event in our life will happen by accident. Unexpected health issues, accidents, serious injuries can occur. In such cases, money is required for hospital expenses, doctor's fees, and medication costs.

Present situations like COVID, untimely rains, loss of properties, loss of crops need money from our savings only. There is no alternative for it.

iii) **Retirement - Old Age** : Although every person who retires gets a lot, that money is far less than what they used to earn. In order to live a standard life, one has to take some of the savings every month.

4) **To make life more comfortable** : You know that electrical appliances make life comfortable. Eg: We need to save for things like washing machine, refrigerator, television and mixer. Savings are necessary to make your dream of building a house come true.

### *Check Your Progress...*

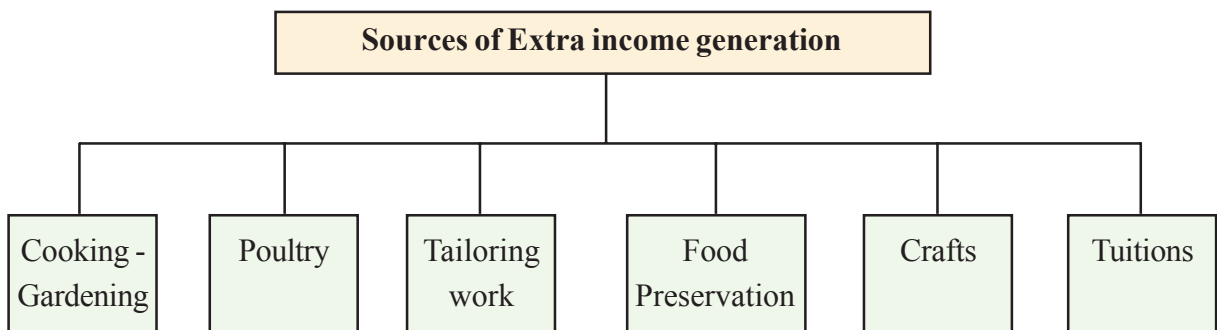
- 1) Explain the benefits of saving money to you and to your family.
- 2) What problems one has to face when you compare people with who save money with who do not?

## 25.3. Extra income generation

These days the price of every commodity is skyrocketing. It is becoming increasingly difficult to buy what we need in a person's life. What should we do in such a situation?

We need to think of new ways in which we can add extra income to our income.

There are many ways to increase our income.



i) **Cooking and Gardening** : Is there any small space in your house? So that you can grow vegetables on there. If not you can grow on the roof. So you can buy less vegetables from outside. Also, if you have a large plot of land in your house or garden, you can grow many vegetables and crops. You can sell the rest in the market. On the other hand you are making money by selling the vegetables that you harvested in the market. In this way we can earn extra money and increase our income.

ii) **Poultry** : If there is some space in your backyard or some space on the roof, you can raise some chickens. They lay eggs, you can use them at home or can be sold in the market. This saves you the cost of buying eggs from outside. There is also some extra income if it is sold in the market.



- iii) **Tailoring work (sewing)** : If you know to sew clothes. It is as if some money is coming in addition to your income. You can sew your own clothes. This leaves the tailor with lot of money. You can sew clothes for your neighbours. This way we can add extra income to our earnings.
- iv) **Food Preservation** : Do you have any experience in making pickles, fruit juices, drinks, pastries, etc.? Yet, such foods can be prepared and saved in large quantities and earned by selling in the market.
- v) **Crafts** : Many of you can do many handicrafts such as stitching, knitting, toys, baskets, candles, paintings, greeting cards, maggam work, etc. Selling these goods in the market will bring in extra income.
- vi) Tutions at home can also provide additional income.

### *Check Your Progress...*

- 1) Write the ways and means to increase additional income by you and your family members.
- 2) How is it beneficial to earn additional income to your family?

## 25.4. Investment

In addition to spending on different items each month, you set aside some money as 'savings'. What do you do with this money? Can you tell what would happen if you put money in a bag and keep it? It will be used up or robbed.

Putting this money in a developing way would be a great approach. It is called investment.

Let us see an example. Suppose you have Rs.10,000/- left. If you keep that money at home it will be Rs.10,000/- after a year also. But if you keep this money in any bank, there will be some interest amount paid for it. It will also prosper. This way your money will increase.

There are many more ways for you to invest your money. Let's look at them.

### 25.4.1 Ways to invest

- i) **Savings and fixed deposits** : By keeping it in a savings account, either in a bank or post office You make your money. They will give you some small amount in the form of interest on your money if you keep it in the bank but not in the post office.

You can keep that money in the bank for a few years. In this case, the entire amount, including interest, will be refunded to you at the specified time. This investment is called a fixed deposit. This interest is higher than a regular savings account. You can also borrow some amount if you need this deposit on your money.

- ii) **By purchasing National Savings Certificates :** National Savings Certificates are sold at the post office. These are Rs.100/-, also available in the form of denominations of Rs.500/-, Rs.1000/-. You can buy these certificates based on how much money you save. You need to save at least Rs.1000/-. These earn high interest. You also get the benefit of income tax deduction on these certificates. You can buy as many certificates as you want. There is no investment limit on these.
- iii) **By purchasing units :** Units are also similar to National Savings Certificates. The units can be purchased through Unit Trust of India. You get a premium on each unit. You get more interest on it. It will be handed over to you by check made in advance for you. These units can be resold to the unit trust when the money is needed.
- iv) **By investing in a Provident Fund :** The Provident Fund Scheme is for government employees, private sector employees and public offices. Each month a certain amount is deducted from your salary. And the money will go to those who hire you. All of that money will be refunded to you upon completion of your job. Another good benefit is that you can also take out a loan (debt) on it for expenses such as your child's higher education, house building, and child wedding.
- v) **By purchasing shares :** Buying shares nowadays seems to be a well-known investment route. Private companies and factories sell their shares in the market to get a large amount of money back. The profits of the company are distributed to the shareholders. You can sell these shares to others for more than the amount you paid.  
  
The shareholder becomes a partner of the company so he can share the profits. But once there is a loss in the company it has to be shared as well. So investing money in shares is a risky thing.
- vi) **By taking an insurance policy :** You will have to pay a small amount for the insurance policy. The total amount of the policy is the amount you have to pay depending on how much you take out the policy. Upon completion of that period your entire money will be paid including interest. The benefits of an insurance policy are that it takes into account the risks to your life, such as accidents, sudden deaths, etc.
- vii) **By investing in real estate :** Real estate refers to fixed assets such as land, house, etc. If you use some of your savings to buy a house, it becomes a lifetime investment. Whenever you need a refund you can sell it for more than you paid for it. Because the value of real estate is usually increasing. Now a days investing in precious metals like gold, silver, platinum, diamonds is also profitable.

#### 26.4.2 Criteria for investment

The following points should be considered before investing :

- **Protection and Confidence:** You need to carefully consider whether the payment to this scheme is credible and whether the money will be returned properly. Most government schemes are safe.

- Easy Liquidity: You should be able to withdraw your money when you need it.
- Availability: Choose the one that gives you the most interest and protection.
- Higher interest rate: You should opt for safer, higher interest paying schemes.
- Tax Deduction: The schemes you choose should be income tax deductible.

**Check Your Progress...**

- 1) Where should we invest in order to get additional income?
- 2) It is risky to buy shares sometimes. Why?

**Key Points**

- Setting aside some money from the income for future use is called saving.
- Putting the money in a developing way is called investment.
- It is necessary to save money for family's special needs, in case of emergencies, after retirement and to make life more comfortable.
- There are many ways to increase income.
- Banks, National saving certificates, units, provident fund insurance policies, buying shares, investing in real estate are some of the ways to invest money.

**Practice for learning outcomes**

- 1) What is savings? What are the benefits of savings?
- 2) Why is additional income required?
- 3) Explain the ways to make more money other than what is given in the lesson. Make a table.
- 4) Choose which of the ways you would like to invest your money. Give reasons.
- 5) Suggest some ways to generate additional income in rural areas. How would you say that it is beneficial to the farmers?
- 6) One of the eminent economist in his speech stated that 'Every family needs to save money'. Analyse and elaborate his statement.
- 7) What are the things do you keep in mind before investing?
- 8) Collect information and make a report on beneficial methods of investments.
- 9) National saving certificates are available in \_\_\_\_\_ ( )  
 A) Banks                      B) Share markets              C) Post office              D) Insurance office
- 10) National saving certificates are available in \_\_\_\_\_ ( )  
 A) Handicrafts              B) Buying a vehicle              C) Tailoring              D) Poultry



# Being an Aware Consumer

In ancient times, people depended on nature for food and other necessities. They gradually began to prepare food and goods with the raw materials of nature. Human needs have increased with the passage of time. This evolution led to a collective life, a system of exchange in which goods were exchanged for necessity with the rapid development of science and technology and the introduction of machines into production, the production of goods has been huge. The need arose to sell the goods produced. This created a clear line between producer and consumer.

- Who is efficient consumer?
- What are rights and responsibilities of consumers?

## Learning Outcomes

### The learner...

- ◆ Adopt responsible consumer attributes in daily lives.
- ◆ Identifies the consumer protection law and right and responsibilities of consumer.
- ◆ Explains standard marks of the goods. Purchase items with standard marks.
- ◆ Questions the traders in the event that an unsafe product is found.
- ◆ To detect adulteration in food, small experiments are done.
- ◆ Customer aids are utilized on a case-by-case basis.

## 27.1 Consumer

"Consumer" can be defined as a person who buys any product from the market for his own use or consumption or consumes the services.

Consumers get their favorite items from market. At the same time competing manufacturers have had to deal with sales pressures from sellers to consumers. This is how the consumer came into use. Consumers are the ones who buy goods and services to meet personal needs.

Consumers in our country are diverse.

### 27.1.1 Indian Consumers - Classification

Our consumers can be categorized on the basis of the following factors.

- i) Age : Children, Adolescents, Adults, Elderly.
- ii) Gender : Men, Women
- iii) Social and cultural status : literates, illiterates, employees, unemployed, skilled persons, unskilled persons, villagers, town people.
- iv) Economic Status : rich, poor, middle class
  - ◆ In our country incomes, poverty, illiteracy in population explosion are found to be drastically different.
  - ◆ Most of the Indian consumers are poor, illiterate, innocent and always in a vulnerable position. Only about ten percent are moderate without meeting the moderns and the conservatives. These are middle class, upper middle class people living in urban areas.

### 27.1.2 Consumers buying nature

His behavior in the context of a consumer purchase is subject to a number of factors. Factors that have an impact internally and externally. Such as price, availability, season, demand, habits, hobbies, environmental impacts etc. Merchants spend huge sums on advertising to promote their products and service. They propagate that they are a must to achieve a better life. Consumer's desires have the necessities of life, luxuries, comforts. They have no end. There is always a shortage of resources and funds to meet the demands so financial rigidity requires discipline. Consumers often come to the market without clarity about their needs. So the wasteful cost is substantial. Mistakes in decision making due to lack of study on needs. One should strive for the best utilization of resources through measures such as separating needs and desires and maintaining a balance in costs.

### 27.1.3 Steps in the buying process

The modern approach to purchasing involves the following three distinct steps. These three phases are interrelated.

#### Do you know?

An individual is a competent consumer. Who supplies the goods he wants at the lowest price and does not increase the price unnecessarily to make them available to others.

- Prior to purchase : data collection.
- Market choice : Products should be selected by looking at the post.
- Post - purchase action : The benefit should be maximized using the purchased items.

### *Check Your Progress...*

- 1) Who is consumer?
- 2) What are the factors that influence consumer purchasing behaviour?

## 27.2 Problems faced by consumer

You will be considered as active consumer when over coming the issues mentioned below:

- Price variation :** You should check the price above the label (MRP) of items before you buy. Don't pay more than the MRP retail price. MRP means printed along with all taxes. Take the receipt if you are changing more than MRP. Because it help you to complain.
- Lack of standardized products :** The market is full of poor quality products shoppers believe that low quality products are good. This is because they get more commission from the manufacturers on substandard products as compared to the standard ones. So buy brands that offer maximum benefits.
- Imitation products :** Products that mimic the packages of popular brands are what we see most in the market. For example the famous brand of colgate toothpaste is imitated as colleged toothpaste. However the color combination and design are exactly the same as original design. Consumers who buy recklessly are deceived.
- Adulteration :** As greed in the business community grows, so does food adulteration. Consumers are being exploited healthily and economically due to adulteration. We learned about food adulteration in the third chapter.
  - ◆ These simple tests can be performed at home to detect adulteration.
  - ◆ visit this website for more tests. <http://pfa.delhigovt.nic.in>
- Non-availability, black marketing and hoarding :**

Every year before the annual budget shoppers move to the black market to make the goods in demand unavailable to consumers to calculate high profits. This causes commodity prices to skyrocket and consumersto loseout. Black marketing cause a lot of inconvenience to the consumer. In such cases the consumer has to switch to another brand of same procut should inform about black marketing to concerned authorities.

#### vi) **Detective weights and measures :**

Merchants use detective weights, measuring jars to deceive consumers on weight. Consumers are vigilant to avoid fraud. Very often the weights have a hollow bottom so that they weigh lighter than they are meant to be. Some measures have a false bottom or a hole. They measure less than what you have paid for. Many times stones are used instead of proper weights or magnets are kept under the balance pans to cheat the consumer.

#### vii) **Misleading advertisements and information by the manufacturers and sales men :**

Shoppers often refuse to hand out product brochures. Often the print on the label is too small or foreign languages and most people do not understand. In most cases a discounted price is written after placing a higher price on the label. This problem must be overcome with vigilance.

#### viii) **Problems related to services :**

The problems related to services are not given much importance by the consumers. The example of faulty and incompetent services are those of builders, school authorities, cooking gas agents, telephones, sanitary and water electricity supply authorities. They make exorbitant charges. They also take large sum security, no interest is paid for this. Even though electricity, telephone and water supply are government services, these are not provided on time. The charges for these services keep steadily increasing. But there is no relationship to the increase in their quality.

#### *Check Your Progress...*

- 1) Which problems faced as a customer?
- 2) Write about imitation products you have observed.

### 27.3 Role of consumer education

Consumer awareness can be brought about by proper education. 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.

#### Wise Buying Tips

Questions	Ask your self?	Suggestions
What to buy?	Do I need it? If your answer no-	Don't buy it.



Questions	Ask your self?	Suggestions
	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
How much to buy?	How much do I buy? Do I need to purchase in bulk?	Buy - <ul style="list-style-type: none"> <li>• according to your needs.</li> <li>• non-perishables (in bulk)</li> <li>• semi-perishables (quantity - enough for a week)</li> <li>• perishables (in small quantity)</li> <li>• from wholesale market</li> </ul>
How to buy?	What should I check?	<ul style="list-style-type: none"> <li>• Survey the market while buying.</li> <li>• Read the lables of material</li> </ul>
Where to buy?	Which shop to buy from?	Buy from a licensed or co-operative shop only.
When to buy?	Is this the right time to buy?	Buy when shops are less crowded and during off season.
How to buy?	Cash or credit?	Can pay by cash, cheques or credit cards.

### *Check Your Progress...*

- 1) What to check when buying goods?
- 2) How to make payments after purchasing goods?

## 27.4 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 shop keepers. To know more about a product before purchasing it. Advertisement in magazines or on the television, leaf lets, labels of products, packages also provide you with necessary information. All such items that provide you with information on product are called consumer aids.







## 27.4.1 Consumer aids

Common aids available to a consumer are labels, leaflets, packages, advertisements, standardisation marks, legislation and consumer association and co-operatives.

- i) **Labels** : They are printed on or attached to the product. Labels are required to give the following information.
  - Name of the product, Trade and brand name
  - Use fo the product • Ingredients • Direction to used the product
  - Warning and precautions to be kept in mind while using the product
  - Date of manufacture and date of expiry in the case of medicines
  - Standardisation mark • Product price • Net weight
- ii) **Leaflets** : Leaflets information 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. It protects the product from damage, breakage, adulteration, pilferage and easy transportation.
- iv) **Advertisements** : These are used by manufacturers to promote their products. You should not blindly believe in these advertisements.
- v) **Standardized marks** : These marks ensure the quality of product.

### CERTIFICATION MARKS

Certification mark		Qualify assurance products
ISI		Electrical goods, chemicals, toys, pressure cookers, biscuits, coffee etc.
FPO		Preserved foods such as Tinned fruits and vegetables, juices, jams, sauces, pickles etc.
Agmark		Agricultural and live stock products like spices cereals, flour, pulses, eggs, oil, butter etc.

Certification mark		Qualify assurance products
ECO mark		Recyclable, biodegradable and environment friendly products like preservatives, detergents, plastics, paints etc.
MPO mark		Meat, goat meat etc
Wool mark		Wool and woolen garments
Hall mark		Gold ornaments
Analysis, critical control point		Processed food
ISO mark International organization for standardization		On the quality management. ISO 9000 stries. On the environmental management ISO 14000 series.

**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 complaints in these courts, according to the price of the product, at a nominal fee.

Our parliament passed the Consumer Protection Act in 1986 in recognition of the United Nations Resolution. The seal of approval from the president was received on December 24, 1986. For this reason, we celebrate National Consumer's Day on December 24<sup>th</sup> every year. As well as every year March 15<sup>th</sup> is observed as world consumers rights day.

**vii) Consumer organisations :** The consumer organizations work for the welfare of the consumer. Accept complaints from consumers to represent them in consumer court:

International Consumer Right Protection Council (ICRPC) is registered NGO that helps and guides aggrieved consumers to file their consumer complaints with the consumer court in India.

### *Check Your Progress...*

- 1) How do labels on goods help the consumer?
- 2) What is the difference between packaged products and non-packaged products?
- 3) Why not blindly believe commercials? Write with examples.

## **27.5 Your Rights as a Consumer**

Knowledge of consumer rights will help you to fight against the various malpractices adopted by sales men and manufacturers.

- i) Right to safety :** A consumer has the right to demand safe goods.
- ii) Right to choose :** A consumer has the right to choose a product from a variety of good quality products.
- iii) Right to be informed :** A consumer has right to demand information regarding a product such as its quality, purity, potency, ingredient, price etc. through the booklet.
- iv) Right to represent :** The right to be heard and to be assured that consumers interests will receive due consideration at appropriate forums.
- v) Right to be heard :** A consumer has the right to express himself in the court if he has been cheated.
- vi) Right to seek redressal :** The right so seek redressal against unfair trade practices, or restrictive trade practices or unscrupulous exploitation of consumers.
- vii) Right to consumer education :** A consumer has right to make himself aware of consumer "evil" in the society.
- viii) Right to basic needs :** Right to basic goods and services guarantees dignified living. It includes adequate food, clothing, healthcare, drinking water and sanitation, shelter, education, energy and transportation.
- ix) Right to health environment :** Each one of us has a responsibility towards maintaining a healthy environment without our active cooperating, government cannot ensure a healthy environment either.

## 27.6 Responsibilities of consumers

- Do I survey the market before buying anything?
- Do I insist on taking the bill even if it means paying a bit extra?
- Do I maintain the bills?
- Am I ready to buy the groceries at any cost or do I find substitutes?
- 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?
- Do I avoid wastage of anything and discourage excess consumption of those goods which are in short supply?
- 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?
- If I find that I am being cheated, do I file a complaint in the appropriate 'consumer forum'?
- Do I observe any change in colour, texture, taste label of a product and immediately bring it to the notice of the shopkeeper?
- Do I buy sealed food products?

### 27.6.1 Procedure for filling a complaint

You purchased a product or service that you were not 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 instructions.

#### Procedure for filling a complaint

Who can file a complaint?	Anyone (you) can file the complaint
When to file?	All complaints to be made within 2 years from date of purchase.
Where to file a complaint?	At District level complaints can be made for products. Which cost upto 20 lakh. At State level complaints can be made for products which cost morethan 20 lakhs but lessthan one crore. At National level complaints can be made for products which cost more than one crore.
What is the fees?	Nominal fees (Rs.100-500 at District) (Rs.200-4000 at State) (Rs.5000 at national)

Who can file a complaint?	Anyone (you) can file the complaint
How to start?	Contact the seller. Keep a record of your conversation if that does not help, file a complaint in the appropriate forum.
How to file a complaint?	<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 complaint and or opposite party.</p> <p>State the facts relating to the complaints - where and when it arose? attach bills along with court fee. Specify compensation desired, submit a notarised compliant form stating that the facts are true.</p>
Where to submit the complaint?	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.
What next?	<p>The court will send a notice to the opposite party seeking reply with in 30 days, asking him to attend the hearing.</p> <p>The court's final order will be sent to the all parties by registered post.</p> <p>Note : It is important for both the paties to attend / send representatives for all hearings.</p>
When will the case be settled?	A case should be settled with in 70 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 germinate quickly and grow faster.
What is the relief available?	Removal of defects from goods, replacement of goods, refund of price paid, compensation for injury / loss suffered, award costs incurred etc.

You can send a short summary of your complaint to : [consermhelp@mtnl.net.in](mailto:consermhelp@mtnl.net.in) without any attachments.

### *Check Your Progress...*

- 1) How does the right to information help consumers?
- 2) Explain the rights of consumers.
- 3) Where should the customers complain for resolving their issues?

## Key Points

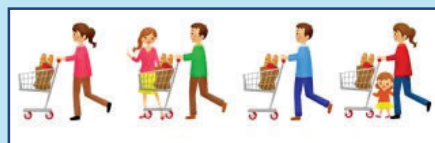
- The persons who buy any product from the market for consumption should be considered as consumers.
- Consumers need to balance costs by separating needs and cravings.
- Consumer aids assists in buying quality products.
- Standard markings ensure the quality of products.
- Consumer protection laws help protect, achieve and protect consumer.
- Consumers rights and responsibilities shape the consumers into active consumers.

## Practice for learning outcomes

- 1) Why should we purchase products with standard markings?
- 2) Why are the shoppers so eager to sell low quality products?
- 3) What are characteristics of responsible consumers?
- 4) What can you do as a consumer to protect yourself from adulteration?
- 5) State the rights which the consumer protection Act protects.
- 6) Identify the incorrect sentence. ( )
  - A) Survey the market before buying
  - B) Receipts of the purchased item should be taken
  - C) Products with low supply in the market, buy in large quantities and be careful
  - D) Packed food products should be purchased
- 7) Match the following :

i) Hall mark	( )	a) oil, ghee, butter, jaggery
ii) ECO mark	( )	b) Gold ornaments, silver ornaments
iii) EPO mark	( )	c) Electrical, electronics, pesticides
iv) ISI mark	( )	d) Soups, jams, pickles, fruit juices
v) Ag Mark	( )	e) soaps, detergents





# Purchase of Household Items

Food, Shelter and clothing are basic human needs. We have to buy these. We need money to buy anything. The money earned will be used for future needs if left over after the purchase of household items. Materialism is rampant in today's world. Advertising is also having an impact on the people. The middle class, in particular, is in debt in the name of modernity. So, this approach of praising sophistication as a nostalgic value must change. Household items should be purchased with discretion.

- What items should be spent to buy a home?
- What are the things to keep in mind while buying clothes and medicines?
- What factors should be considered before buying home appliances?

## Learning Outcomes

### The learner...

- ◆ Identifies the items which are needed for home.
- ◆ Explains precautions to be taken while buying medicines.
- ◆ Classifies items needed for the home.
- ◆ In daily life proper precautions should be taken when purchasing food items, clothing, medicines and home appliances.

### 28.1 Purchasing plan for household items planning should take into account the cost, savings and income in purchasing household items. Things to consider before buying home appliances

- Remember family needs.
- The number of family members should also be taken into consideration when buying goods.

- Food items should be purchased during its seasons.
- In package items should be purchased.
- Make sure the prices of the goods.
- Only buy items with standard markings.
- Items must be purchased from a wholesale market.
- Buy food in bulk.
- Buy from a supermarket or a co-operative store.
- Make sure the storage space is available.
- Do not be fooled by the statement.
- The goods should be purchased taking their advice from the consumer.
- People have been buying through online shopping since the internet facility became available in most parts of the country. This makes shopping convenient. A variety of items can be purchased from house can save time. The price of goods is also low. Can shop 24/7 days. No need to stand in line and buy. You can buy any item without hesitation. Online shopping is very useful.
- The price of the item to be bought from the market should be available to you.
- The item must be safe and have a service guarantee or replaceable.
- The purchased item must work efficiently.
- The appliance should save your time, money and energy.

## 28.2 Factors which help you in selecting textiles

- **Market Survey :** It is always good to do a market survey before making a final purchase. The market survey will help us to find and about the differences in various shops with regard to : Price, Variety, Quality, Reliability.
- **Select the "Right" shop :** Always buy fabrics from an authorised showroom. They will provide genuine fabrics and will not charge you more than the cost of the fabrics.
- **Look for the mark "blended fabric" :** Followed by fibre percentage.  
Example : Cotton 60% - Polyester - 40% (Polycot)  
Cotton 62% - Viscose - 38% (Cotswold)
- **Measurement of fabrics :** Some sellers measure clothes less by various means. We need to check this.
- **Colour fastness :** To check fastness, the coloured fabric or the prints can be rubbed on a white wet cloth. Even if there is a slight colour mark on the white cloth, it indicates that the colour is not fast.

- **Imitation markings :** Manufacturers give finishes to fabrics for improving their performance and indicate them on the fabrics. But some do not follow this, give a similar sounding marking to cheat the consumers.
- **Other cloth defects :** Check for misprints, patchy colour, hole, cuts or tear uneven weaving.
- **Receipts :** Always demand a cash receipt and keep till the time you are satisfied with the purchases.
- **Check for markings :** The manufacturer makes some markings on the fabrics as information for the buyers. These markings inform mills name / price / finishes given / blend percentage / fastness of washing / weave type / yarn type / date of manufacture.

### 28.3 The points to be observed and followed while purchasing medicines

- **Avoid self medication :** Buying medicines without the doctors advice, may lead to more complications.
- **Avoid tonics or growth stimulants :** Only persons recovering from an illness may require tonics, which should be taken only after consulting a doctor. Good eating habits are sufficient for normal persons.
- **Avoid medicines for pregnant and nursing mother :** These women should be very careful and not take any medicine without consulting their doctors. Any medicines taken carelessly will affect the health of the child also.
- **Use simple home remedies :** As far as possible, simple home remedies should be used for common ailments.
- **Take the correct dose of antibiotics :** Take antibiotics in the correct dosages as prescribed by the doctor and for the full recommended period.
- **Do not use medicine prescribed for someone else :** When a doctor prescribed medicine for a person, he does so after examining thoroughly. If we take medicines prescribed for someone else, the dosage or the type of medicine may not be the same as required by another person.
- **Be careful about allergies :** If you are sensitive or allergic to certain medicines like penicillin, sulpha drugs etc. You must remember and inform the doctor about it.
- **Check for dosage :** Find out when the medicine is to be taken the dosage and use accordingly.
- **Consult a qualified medical practitioner :** If you get examined by a non-qualified person it may be harmful to your health.

- **Buy only from medical shop :** Buy medicines from shops which sell medicines only. The medicines at provision or general store may be old. They lack knowledge and may sell the medicine even after the expiry date. So check dates of manufacture and expiry.

## 28.4 Things to consider when buying groceries for the home

There are three types of foods according to their nature

- Perishable i.e. spoil verysoon.  
Eg : milk, vegetables, fish and meat.
- Semi-perishable i.e. keep for some time.  
Eg : eggs, potato, onion, garlic.
- Non perishable i.e. keep for long period.  
Eg : rice, wheat, dal, spices, sugar.

### *Check Your Progress...*

- 1) Why should we buy goods in the super markets?
- 2) Who should use tonics and stimulants? Why?
- 3) What are the benefits of online shopping for consumers?

### Key Points

- Items must be purchased in a package.
- Only buy items with standard markings.
- Garments supplied by authorized textile mills should be purchased from the showroom.
- It is very dangerous to use drugs without a factor's advice.

### Practice for learning outcomes

- 1) What items do family members usually need?
- 2) What are the things to consider before buying home appliances?
- 3) What are the things to look for before buying drugs?
- 4) What are the benefits of online shopping?
- 5) Identify the incorrect sentence ( )
  - A) The items in the package are avilable at lowprice
  - B) The ingredients in the package have the right weight
  - C) Packed food items are clean
  - D) Contaminating packaged material is a difficult task
- 6) Temporarily stored food item ( )
 

A) Fruits	B) Onions
C) Pulses	D) Dry fruits



# Safe Home and Safety at Home

Sunday is a holiday for our school. I wanted to help my mother in kitchen. Because if the cooking is done quickly we can go to see the Konda Pochamma Project as per our plan. I got up early in the morning and slipped in the bathroom when I want to do chores. But did not suffer a major below. When I went into the kitchen. I noticed boiling milk boiling on top of the stove. In order to unload the bowl of milk with my hands. I removed my hands as soon as I could. But most of the milk fell on the stove. The finger was slightly cut off while chopping vegetables. I put on a band to stop the blood. The injury was not deep so the accident was avoided.

When cooking was ready we prepared the tiffin box and all our family members took a taxi. I sat in the taxi and thought. Can accidents at be prevented? Do similar accidents happen in every one's homes? Can we turn our homes into safe homes? In this unit we will learn about safe house and how to prevent accidents at home and what to do in case of accidents.

## Learning Outcomes

### The learner...

- ◆ Explains common accidents that occur at home.
- ◆ Identifies the causes of accidents at home.
- ◆ First aid kits are properly maintained.

## 29.1 SAFE HOME

### • How to build a safe house?

Giri the middle class pretty employee does not own house, Knowing that the desired location to build the house can be found in instalments, chose a beautiful ventures plot and paid the instalments for four years and owned the plot. He has built a house with all the emenities with Rs.12 lakhs under a bank home loan. Lives in new house with family. His happiness did not last long up to half of the houses in the venture were submerged due to heavy monsoon rains. Giri became homeless. Do you feel you have to take a lot of precautions before buying a house?

Just as it is important to be safe at home, it is just as important to build a house that is safe in all respects. Therefore, it is important to think scientifically and take appropriate precautions in the case of creating fixed assets such as buying a house, buying flats or buying a built house.

**Precautions to follow:**

- Need to know if soil is suitable for building a house.
- Investigate any previous lameness, pond, dumping yard or other negative aspects of the house site.
- Need to know if all the amenities are close to the place of residence.
- Legal advice should be sought with a lawyer to determine if the seller of the residence has ownership rights.
- Find out what the venture site is like under the town/city masterplan (Residential/ Commercial/ Industrial).
- Find out if the venture owners have 'NALA' certificate. (We must verify a NALA certificate from the concerned authorities, with venture owners when we are buying a plot which is an agricultural land to converted residential plots)
- Check the road connectivity of venture site.
- The venture site should be proper with boundary fencing.
- Need to know if the accommodation has all the amenities.
- Proper care should be taken to prevent damage caused by natural disasters such as earth quakes and land slides.
- It is best to build a house under self-supervision with good quality material.

***Check your progress...***

- 1) Why do some people fail to construct a new safe house?
- 2) What precautions do you suggest to your friends, when they are purchasing a new house or a flat in an apartment?

Just as it is important to have a good house in a good place, it is just as important to live in it safely. Now let us know how to stay safe at home.

## **29.2 NEED FOR SAFETY AT HOME**

- **What is the need for making our home safe?**

Accidents are major cause of death especially among the elderly and the children. 80% of the accidents occur at home. Many a times we slip or trip but somehow get saved. These are

warning signs of potential accident sites which need attention to prevent accidents. For example, there may be a loose wire on which you trip so what do you do? Yes pickup the loose wire an tape it against the wall so that nobody falls over it.

Are there chances of this boy Raju 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 home 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.

### 29.3 Common Accidents At Home

Accidents are usually unpredictable and unintended. Carelessness about basic safety norms in the house can take a second to cause an accident. Even one unsafe area is enough to cause an accident at our home. Good news is that most accidents can be avoided. It is important to know what kind of accidents can occur at our homes.

#### 29.3.1 Falls

Nearly half of the accidents at home are caused due to falls. What can we do to avoid these accidents? Yes, by keenly observe our homes and identifying potential danger zones as well as behaviour that can lead to accidents.

#### Activity-1

The evaluate your home, do you think is it safe, if not, give recommendations for improvement.

S.No.	Incidence	Option-1	Option-2	Your home status
1	The floor is	clear / dry	cluttered with things / soapy / wet	
2	Window	has a grill	doesn't have a grill	
3	Ladder used for climbing is	Steady	wobbl	
4	Roof has	Boundary wall	no boundary wall	
5	Stairs are	well lit	dimly lit	

Recomendation for improvements : -----



### 29.3.2 Careless vehicle parking's at home

Now a day's most of families have their own four wheeler like cars and jeeps. Generally parking accidents occur due to carelessness and impatency of a person to prevent such accidents, let us follow the following precautions.

- Parking place must be spacious
- While parking the vehicle do not allow children or elders to come near the vehicle
- Speed should be at low pace while parking vehicle.
- Don't push closed main gate with vehicle.
- Vehicle ramp must be of adequate slope.

If we follow these type of measure we should avoid parking accidents.

### 29.3.3 Cuts

Three years old Ravi was playing with a ball in hall, suddenly he stucked his head with sharp edge of a cardboard. He got injured and his head was bleeding. In this way, we can be injured in many incidents at home.

How can we avoid this accident?

Avoid leaving children unsupervised to prevent such accidents, let us examine your home for items which can lead to cuts.

- Sharp corner of any furniture
- Cracked or chipped glasses are cups
- Knives stored facing upwards
- Care should be taken when buying childrens toys.
- Blades, scissors and broken glasses lying within the reach of children
- Cutting tin without a tin cutter.

#### *Check your progress...*

- 1) When do we fall in our home?
- 2) What precautions should be taken while parking?
- 3) How to save us from the cuts and wounds?

### 29.3.4 Burns and wounds / scars

Laxmi was lighting crackers on Diwali. She did not observe fire on her dupatta until her brother brought it to her notice. Lakshmi was saved from fire accident removing her chunni early.

Some examples of common burn accidents that can occur at home are given below.

- 1) Hot tea gets split on someone.
- 2) Hot oil splashes while frying.
- 3) Cloth used to remove dishes from stove, catches fire.
- 4) Child plays with a matchbox.
- 5) Cooking oil placed near the gas stove.
- 6) Cooking gas cylinder leaks.

**Do following things in case of cooking gas cylinder leaks.**

- Switch-off the lights.
- Open the windows.
- Never ignite any match stick or light any type of fire.
- Take out the leaking cylinder and place it in the open air
- Call fire brigade or the emergency helpline phone number of the gas supplier.

**Precautions in case of fire accidents**

- Never run if your clothes are on fire. It will only fan the fire
- Put out the flame with sand or water. Do not use water to put off an electrical 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 ground level is cleaner as hot air and smoke rise upwards.

### 29.3.5 Poisoning

Charitha was a four years old. She saw a small packet in a kitchen shelf which appeared like candy wrapper. She opened the wrapper, she was about to put it in her mouth when her mother snatched it away from her hand.

Poisons when injected are dangerous and even cause death. All chemicals like household cleaners, detergents, insecticides, pesticides fuels like kerosene, expired medicine can cause poisoning.

How to prevent poisoning at home?

- 1) Keep chemicals locked, away from kitchen and out of children's reach.
- 2) Do not store them with food items or in food containers.
- 3) Before consuming, wash all the fruits and vegetables thoroughly.
- 4) Label all the medicines of bottles.
- 5) Check expiry date and discard all the expiry medicine.

### 29.3.6 Bites and stings

It was a very pleasant day and a family decided to go on a picnic. Sheela and Geetha were happy to see a big mango tree and started throwing stones at the mangoes. One stone accidentally hit a bee hive and a swarm of bees stung them. Both were hospitalised. The strings 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, snakebite can be fatal, if not treated immediately. Therefore, it is advised to consult a doctor as soon as possible.

Let us know how to prevent bites and stings at home.

- Pets should be vaccinated regularly
- The house surrounding should be cleaned.
- If there are any burrows in the house they should be closed.
- Goods or any, other material should not be placed randomly in the store room or in the other rooms.
- Consult a Doctor without neglecting any insect bites.

### 29.3.7 Electrocutation and shocks

Rajendra dancing to the music and was enjoying. Accidently, his foot touched a wire and the naked wire came off the socket. Remembering how his father fixed is he tried to insert the naked wire into the socket only to get an electric shock. 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 an electric shock at home?

Safe use of electricity at home.

- Wear rubber slippers while handling electrical appliances.
- Do not attempt repair on your own.
- Buy ISI marked electrical appliances only.
- Get electrical repairs done from a qualified electrician.
- Cover all un used sockets with safety plugs are sticking tapes old and worn out wiring should be changed promptly.
- Never remove plug from the sockets by pulling the wire pull out the plug itself.
- All the electrical appliances should have earthing. Earthing makes appliances relatively safer to use.
- Do not touch any electric switch or appliances with wet hands.
- Do not attach many appliances to a single socket. It will overheat the wires and cause short circuit.
- Each electrical device must be connected to the fuse.

### 29.3.8 Suffocation and choking

Little John was playing near water sump, unfortunately sump was not closed with lid, John was fell down in the water sump and choked. His mother immediately get up him from sump and saved. Then one day he tried to wear the colourful polythene bag as a cap and almost suffocated. These are everyday happening. To prevent accidents related to chocking and suffocation among children following points must be kept in mind. Another reasons for suffocation and choking amongst children and adults could be fumes from LPG cylinder, motor exhausts, generators, char coal stove, soft coal and wood produced carbon monoxide which can cause death due to suffocation.

- Adult supervision is a must.
- Use proper lids to water sumps and lock it.
- Buy toys which do not have very small detachable parts.
- Do not allow the children or anyone to eat or drink while being in sleeping position.
- Keep Polythene bags, ropes, dupattas etc., out of the reach of children.





# Values of family life

Most people have a habit of reading the news paper early in the morning. Does the news in the newspaper making us happy? Murder, robbery corruption, discrimination and rape are all bad news when you look at the paper. Everyone is worried about this. Have you ever thought about the negative changes in our society? A family plays an important role in shaping each person based on values. Adapt the behaviour of individuals based on family values. A school then assumes this responsibility after the family.

Although everyone is aware of the values, choosing bad ways to achieve success quickly. Is it right to choose such immoral ways? Does everyone need to have values? Where should values be learned from? What is the role of family in this? What values should be followed in life? What is the significance of values? Let us know the answer to many such questions through this lesson.

## Learning Outcomes

### The learner...

- ◆ Explains the values of family life.
- ◆ Identifies the need to have values and the need to live with dignity in society.
- ◆ The life values of families are practiced in every day life.
- ◆ Distinguish between sympathy and empathy.
- ◆ Describes rights, responsibilities, behavioural characteristed values that should be present in the work place.
- ◆ Identifies the approach to be taken towards family members.
- ◆ Appreciates the uniqueness of dignity of labour.
- ◆ Tolerance, positive attitude, empathy and dignity of labour are implemented in everyday life.

## 30.1 Values

Man is a social being. When it is stated that man should be ideal, society needs to be ideally constructed. Only in an ideal society can a person attain the highest values. Many Greeks believed that the kingdom would emerge as the pillars of the four great values. They being of intellect, courage, integrity and justice and with the same ideals, the kingdom would emerge ideally plato believed that these values were the fruits of every human life.

The life lead with the moral values is the highest life. "A man who lives by civilized values is a good man" said Aristotle.

The purpose of human life is not just to enjoy but to live contentedly. A good life to fully develop our physical needs, humanity and energy. Some habits make us perfect, physically, mentally and socially. Virtues are the good habits that shape a person's life and behaviour. Man's innate initiative skills, agility, skill and efficiency in performing tasks are considered and virtues.

- She is very good.
- It would be nice if he didn't do that.
- They have no ethics. Similarly some coments are with universal truths.
- It is our duty to respect teachers.
- Family members should cooperate with each other.
- It is better to help the neighbours.
- Hitting children is wrong.
- It is our duty to respect our parents and look after them.

There is no values to human behavior if it is not good. Individuals with values increase in level, finds prestige in every day affairs in the community. Morality is not sophistication. But you can get it by practice.

## 30.2 Honesty

Rafi was a taxi driver. One day a passenger left his briefcase in the car. Rafi noticed it only when he was going home for lunch. He thought of opening it to see the name and address of the owner. So he opened the briefcase. He was surprised to find many valuable documents and cash in it. He drove straight to the police station and surrendered the briefcase to the police officer in the presence of the briefcase owner. The owner was grateful and rewarded Rafi for his honesty.



This is a very rare quality. Now you know that Rafi 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 action that are guided by your value system.

values are ideas and beliefs we hold and are learnt since childhood. They are imbibed from our parents schools, society, media and immediate surroundings. Ethics festers our values. This is the way we behave in difficult situations.

### **30.3 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

#### **30.3.1 Values at workplace**

It is very important for an employee to possess a set of values in order to maintain in conducive atmosphere at the work place. 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 resource.
- Courtesy and politeness with co-workers.
- Efficiency in completing tasks.
- Willingness to take up new tasks.

The works we do in daily life depend on our values. Values guide every decision we make.

Let us understand how important morality is for a peaceful and just society!

### 30.3.2 Values of family life

Family members should cooperate with each other and live with values. Children learn by watching their behaviour as adults do. Values that are practiced by adults in particular can guide children. The conduct rather than the words of the eldest of the house, becomes a guide for the rest. All family members should behave with values towards every one associated with the family.

- When you visit a friend's home, you remember to take leave from the elders of that house.
- When your friends visit you, you introduce them to your other family members.
- You, never raise your voice, when you speak with elders.
- You make a plan to go out, inform your mother or other family member.
- Watch TV shows as much as family members are interested. But TV channels should not be changed at your discretion.
- You always stay on important days in the family.
- Respect for adults should be the same as for children. That means others respect us and it is important that we respect them too.
- Talk happily eagerly and think and speak with others.
- When two people are talking, do not interupt them.
- Don't talk about hurting others.
- Be very respectful when talking to parents.
- When speaking in a group, speak in a language that they can understand.

- Be humble, when talking about yourself.
- Do not whisper to others while in the group.

*Check Your Progress...*

- 1) What are the values of life?
- 2) What are the consequences of not following the values?
- 3) How do you behave in a family?

### 30.4 The uniqueness of dignity of life

We must have respect for hardwork. The work we do must be done boldly, happily and wholeheartedly. Those who do not have such an opinions cannot do any work properly. For example, in a school, there are teachers, clerk, watchmen, attendants, etc. Every one to be employed to run the school properly. while one work is dignified it cannot be said that the other is not dignified. So all professions in a society are respectable. We should never be ashamed to do our deeds. Similarly in a family children and adults should all stay together and carryout family life activities. Everyone in the family from children to adults has certain responsibilities. These have to be fully maintained by everyone. Recognize that every task is great and necessary. We should have the same attitude towards family members as well as house keepers.

**Tolerance :**

Tolerance is a state of mind in which a person does not accept diversity but is indifferent to diversity or an indifferent attitude that is expressive despite of diversity. In simplest sense, tolerance is a person's desire to be patience.

Some people have great skills. But they are always impatient with others. Patience is a skill that helps us to live peacefully in family. Must be tolerant of family. This does not mean being indifferent to the corrupt practices of family. Patience that does not question evil is very dangerous.

**Empathy :**

Empathy is the attitude of a person who thinks of other person, who thinks of other people's suffering as their own and helps to alleviate their suffering. Similarly, they also participate in their celebrations. Such people gain respect in the family. Compassionate people create a pleasant atmosphere for others. The partial attitude of empathy is sympathy. Sympathy is seeing and responding positively to other people's suffering.

### **Positive attitude :**

It is not our preferences that determine our status in family. Our way of thinking positive attitude depends on certain factors.

- Learning by observing. For example : Daughter imitates father's behavior where as son imitates mother's behavior. That is, it comes to children if their parents behavior is positive.
- Childhood experiences. For example : Experiences that children have with their neighbours, at school and with relatives can bring about significant changes in their behaviour. They show positive attitude or show negative attitude.
- Attitudes caused by the influence of the environment are the environment in which children grow up. Positive attitudes or negative attitudes can change due to the influence of the weather as children grow up.
- Influence of social, psychological and economic factors. For example : Although socio economic factors had an equal impact on the two brothers their way of thinking can bring a positive attitude towards one aspect and a negative attitude towards another aspect. That is, our attitude is determined by our way of thinking. The social and economic status of the family influences the values of the family members.

A positive attitude means forgetting one's weakness and focusing on one's strengths and becoming workaholic. These are the steps that help to meet a positive attitude.

- There must be liking, affection, understanding on the work we are doing.
- We need to take inspiration from those who are smarter than us and not succumb to the feeling of inferiority.
- Success requires patience. Apart from that moving forward depending on your skills is a positive attitude.

### **30.5 The rights and responsibilities of the family members**

The right is the right to express one's right to achieve how one wants to live in a just or morally correct manner. Social wellbeing is the only human basis in seeking rights. The right is individual, but it takes the birth in society. Rights must be enjoyed within the prescribed range. Every person has right in society by birth.

William Lilly explained that responsibility is the duty that an individual has to perform in order to satisfy society or another person. Children have the right to education. It is the responsibility of parents to educate their children. Individuals have certain rights because they perform certain responsibilities. A responsible person has clean behaviour.

Vimala was a class tenth student. She was rude and had no respect for her elders. She would neither help her mother nor listened to her father. Instead, she 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 in a matured way.

We all live in a family which nurtures us as individuals. Important social skills like caring, sharing, tolerance and empathy are all learnt in our home.

One day Vimala's family decided to make her realize her mistake. Vimala 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 Vimala came home in the afternoon, her mother sat by her and asked her how she felt about the morning experience. Vimala realized that she was rude, disrespectful and uncooperative, others would treat her in the same way. Vimala promised her mother to act responsibly further.

Vimala 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.

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. A family with such an environment and a society with such families is filled with values.

### *Check Your Progress...*

- 1) How is empathy greater than sympathy?
- 2) What are your responsibilities in your family?
- 3) How does a positive attitude contribute to people in the family?

## Key Points

- The behavior of people living in a society is said to be ethical to examine on the basis of good and bad.
- Morality is found in the behavior of individuals, its inherent in society.
- Individuals with values increase prestige in the family, community and in everyday affairs.
- Employees must have the values to work happily to create a positive atmosphere in the workplace.
- If all the members of the family do not follow the values, the family will be in turmoil and every one's life will be in trouble.
- We must have respect for hardwork. Patience is a state of mind, a state in which diversity is not accepted but there is no opposition to diversity. Empathy is a great human trait.
- People with a positive attitude reach a higher status.
- Each person has certain rights and responsibilities as a family member and and a member of society.

## Practice for learning outcomes

- 1) How can you say that values are very important in every day life?
- 2) What values should an employees to at the workplace?
- 3) What affect does an adults behaviour has in the development of values among children?
- 4) How does having a positive attitude affect to the well-being of life?
- 5) Explain that responsibilities also exist where rights exist.
- 6) Comment on the greatness of a family where there are people who respect the dignity of labour?
- 7) An attitude of sharing the hardships of others. ( )  
A) Tolerance                      B) Sympathy                      C) Positive attitude      D) Empathy

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# 10వ తరగతి తరువాత

