

# HOME SCIENCE

*(For 11<sup>th</sup> Class)*



**Punjab School Education Board**  
**Sahibzada Ajit Singh Nagar**

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## **Foreword**

Punjab School Education Board, since its inception has always been engaged in an endeavor to prepare text books for all classes at school level. Keeping in view the present academic thought at National level, Board has prepared textbooks as per the guidelines of National Curriculum Framework 2005 /Punjab Curriculum Framework 2013. The book in hand is one in the series.

In the recent past, discussions to bring about qualitative improvement in teaching learning process are going on to make education more relevant to the real life situations. Home science has been implemented as an elective subject for Senior Secondary classes. The book in hand has been prepared for the students of class XI. The subject revolves around human surroundings, family nutrition, family clothing, management of resources and child development so that students are able to contribute to the family, social and economic development.

To make the content more relevant, pictures have been placed at appropriate places and the exercises have been developed according to present structure of question paper and the mental level of the students.

Keeping in view the educational and vocational needs of the students of class XI, this book is an effort to present the required knowledge in an easy language as per the revised syllabus after taking suggestions from school lecturers, SCERT experts and university professors.

Suggestions from the readers and teachers for the improvement of the book are solicited .

**Chairperson**

Punjab School Education Board

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***SECTION A***  
**FAMILY RESOURCE  
MANAGEMENT**

## MEANING AND IMPORTANCE OF HOME SCIENCE

Home science is a very useful field of education for all round development of pupils. Earlier it was assumed that this course covers cooking, stitching, homemaking and is designed for girls only. But this is a wrong notion which can be corrected by understanding of various areas of home science. In this chapter we will study:

- Meaning of home science
- Five major areas of home science
- Significance of home science
- Job/Self employment opportunities for home science students

### ➤ **Meaning of home science**

Home Science is an education for good family life. It is the application of many sciences and arts for achieving healthier and happier homes. It does not limit itself to mastering of home related skills of cooking, laundry, stitching, decoration etc. but also prepares students for a large variety of careers and vocations for self employment.

According to Encyclopedia America -Home Science is a broad field of knowledge and service concerned with all phases of family life. It draws upon a variety of disciplines including humanities, biological, physical, social sciences, fine arts and synthesizes from them, the principles and guidelines needed to improve the well being of individuals and families.

Rajamal P. Devdas defined home science as education of home life. It is concerned with daily lives of people; the food they eat, the houses in which they live, the clothes they wear, family relationships, the bringing up of children and proper use of resources to achieve maximum happiness. So home science helps young boys and particularly girls to understand their role and responsibilities in the family and community, in management of resources and the duties of future parents. Besides, it empowers the pupils with self employment and entrepreneurial skills thereby making them efficient home manager as well as financial contributors for their family.

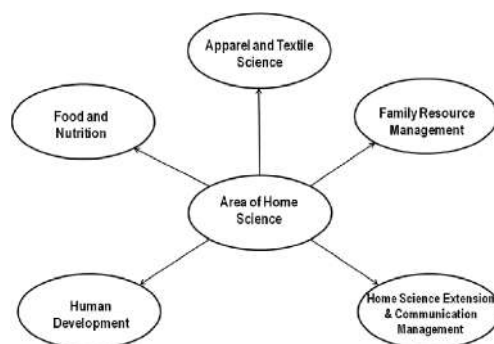
### ➤ **Areas of home science**

Home science curriculum includes the following five areas;

- (A) Apparel and Textile Science
- (B) Family Resource Management
- (C) Food and Nutrition
- (D) Human Development
- (E) Home Science Extension and Communication Management



- (A) **Apparel and Textile Science:** Clothing is one of the basic necessities of human beings. The department of apparel and textile designing deals with the training regarding selection of family clothing, household textiles, laundering, dry cleaning, textile testing, knitting technology , embroidery, dyeing, printing, computer aided designing and fashion designing.
- (B) **Family Resource Management:** This area of home science equips one in management of family resources i.e. time, money, energy, housing need and interior decoration, selection, use, care and cleaning of household equipment/ furniture, consumer education and protection.
- (C) **Food and Nutrition:** Food plays an important role in our lives. Health of an individual largely depends on the nutrition one takes. The study of Food and Nutrition provides expertise in planning of balanced diet for different age groups, preparation of nutritious food, food preservation and baking. The study of food and nutrition also equips us with knowledge about different diseases and special diets required by patients of different diseases like diabetes, high blood pressure, obesity etc.
- (D) **Human Development:** This field provides knowledge about different stages of life which ensures self understanding among individuals. It gives thorough training in physical;, emotional and mental care of child, childhood diseases, ways to protect children from communicable diseases, special needs of differently abled children.



*Fig. 1.1: Five areas of Home Science*

- (E) **Home Science Extension and Communication Management:** This field of home science aims at bringing about change in the behavior of people through dissemination of scientific and technical information in different areas of home science. This area prepares students for extending their knowledge of home science beyond their classrooms. The major objective of this area of home science is to develop the capacity of individuals in order to make them self reliant and productive citizens of the society.

## ➤ **Significance of home science**

Home Science education helps to meet the challenges of daily life with confidence. It provides basic information required to make rational decisions at home and outside. Besides knowledge of home science enables one to develop home making and entrepreneurial skills. Hence it equips one for care of home, family and pursuing a career.

The basic goal of home science education in school is to facilitate all round development of pupils through;

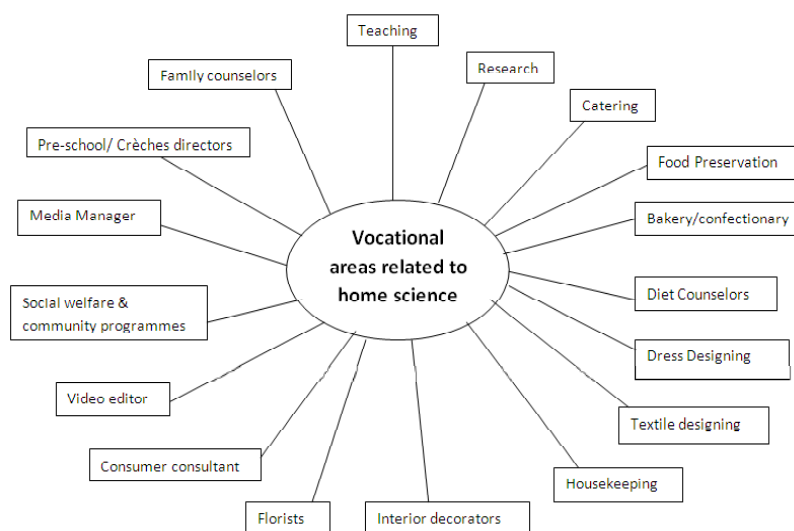
- (A) Appreciation of values such as religion, co-operation and maintaining the integrity of family life for everyone's happiness and well being.
- (B) Creation of proper attitude, interest and desire to assume responsibilities in home.
- (C) Knowledge of facts regarding health, nutrition, cleanliness, hygiene and other aspects of family living.
- (D) Creation of ability to make judgement and decision.
- (E) Creation of ability to do household work such as cleaning, cooking, clothing construction, care of household articles, making household purchases, maintaining accounts, entertaining guests and looking after children.
- (F) Formation of good habits, such as personal hygiene, good manners and health practices.
- (G) Preparation for careers outside home.

Through achievement of above mentioned goals, home science education makes a significant contributions to security, health, well being, social and emotional integrity of the individual, the family and the nation. It is a unique subject, interdisciplinary in nature, covers both scientific and creative work. It is a professional field, training not only for better home and family living but also prepares the student for large number of careers in teaching, social service, business, research and vocations. These careers are exciting, relevant and much in demand.

## ➤ **Job/self employment opportunities for home science students.**

After reading about five major areas of home science and its significance, it is clear that home science education provides number of employment opportunities to students. The Fig. 1.2 provides a fair idea of different vocational areas related to home science. Let us now take a look at various job opportunities available under each of vocational areas related to this field of study.

- (A) Home science degree holders can become teachers in schools, colleges, polytechnics, industrial training institutes, catering colleges etc. They can also run hobby classes in any vocational area of home science.



*Fig. 1.2 : Vocational areas related to Home Science*

- (B) They can start their own crèche/day care centre, pre- school; or nursery school or get a job as pre- school manager, teacher, crèche manager, anganwari worker/supervisor. Besides they can become child counsellors for solving behavioral problems of children.
- (C) They can become diet consultants in hospitals/nursing homes, health clubs and guest houses.
- (D) They can establish their own bakery like Mrs. Bector, a home science graduate, and owner of Mrs. Bector's Food Specialities Ltd. who supplies burger, bread, buns, sauces, chutneys to multinational food chains and other catering centres.
- (E) They can opt for job as interior decorator in homes/ hotels, furniture designer.
- (F) They can also become event managers, can start their enterprise in floral creations/ decoration, handicraft designing, candle making.
- (G) They can also get a job of housekeeping in hotels/guest houses and can get contracts for cleaning and maintenance of guest houses/hotels, homes etc.
- (H) They can become dress designers, dyers/printers, boutique owners etc.
- (I) Home science students can also start their own non-government organization (NGO) for social welfare, they can become project

managers, public relation officers, media manager, professional photographers and video editors etc.

- (J) There is also scope for working in child and family welfare organizations. A large number of home scientists are working as Child development project officers (CDPOs) in India. Besides they can also work as consumer consultants and fight cases for redressal of consumer grievances.

#### ACTIVITY

Make a list of opportunities available for self employment after studying home science.

In nutshell, this can be concluded that home science education offers practical, job oriented and entrepreneurial courses to enable students to become efficient home manager, economically independent and self reliant. Therefore, home science helps in improving quality of life through all round development of students.

#### THINGS TO REMEMBER

- É Home Science is multidisciplinary and well defined field of education.
- É The basic goal of home science education is all round development of pupils.
- É It has five major areas viz apparel and textile science, family resource management, food and nutrition, human development, home science extension and communication management.
- É It is concerned with strengthening of individual, family, community and national ties and offers a vast scope for career opportunities.

#### QUESTION BANK

##### Objective types questions

1. Home Science education is very useful for \_\_\_\_\_ of pupils.
2. There are \_\_\_\_\_ major areas of Home Science.
3. The study of \_\_\_\_\_ provides expertise in planning of balanced diet for different age groups.

4. \_\_\_\_\_ area of Home Science equips one for the management of family resources.
5. Home Science Extension and Communication Management:
  - (a) Provides expertise in planning of balanced diet
  - (b) Aims to develop capacity of individuals
  - (c) Helps in management of family resources
  - (d) Helps in knowing about development stages of children
6. This area of Home Science equips one for the management of family resource:
  - (a) Human Development
  - (b) Family Resource Management
  - (c) Food and Nutrition
  - (d) Home Science Extension and Communication Management
7. Home Science is a unique subject, interdisciplinary in nature but covers only aesthetic and creative work. true/false
8. Knowledge of Home Science enables one to develop home making and entrepreneurial skills. true/false
9. What is home Science?
10. Enlist 5 major areas of home science

**Short answer type questions**

1. Home Science is equally important for boys and girls. Comment
2. Discuss in brief, the role of home science in our society.
3. What are the different job options offered by Human Development stream?

**Long answer type question**

1. Give a brief account of importance of home science education in our life.
2. Discuss about various career options after training in the field of home science.

\*\*\*\*\*

## CONCEPTS OF HOME MANAGEMENT

Generally we all think that home runs on its own, by servants or by parents. Any special effort is not required for carrying out daily household activities. But we don't know that we all are playing our role in managing each household activity without even noticing it. Various routines like getting ready for school or office, cooking, eating, dressing up, cleaning up of home etc. involve management of series of activities and resources to finish the desired work in satisfactory manner. For example, daily we need clothes to wear which involves the purchases of material, its stitching, washing ironing and storage. Similarly for eating we first need to purchase raw ingredients, their cleaning/ washing, cooking, then serving in proper utensils. All such small actions need to be managed and we are doing this all in a casual manner without thinking. All these are part of home management. While carrying out various household activities, series of decisions are taken by the family, which lead to attainment of goals.

In this chapter you will study about the following concepts of home management:

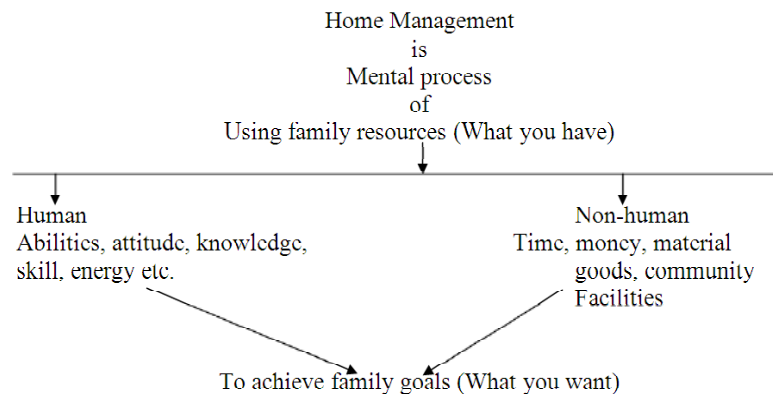
- Meaning of home management
  - Purpose of home management
  - Motivational factors of home management?
  - Home management process
  - Decision making
  - Qualities of an efficient home manager
- **Meaning/definition of home management**

Home management deals with the practical application of principles of management to the home. It is the way family uses what it has i.e. its resources; time, money, energy etc. to get what it needs.

Home Management is the administrative aspect of family living. It is a dynamic process that involves decision making which leads to action and attainment of goals. It helps a family to utilize its resources in a planned manner and to solve its problems efficiently. The good management enables the family to work towards desired goals, by efficient use of all available resources for satisfaction of needs and desires of its members.

According to Varghese, Ogale and Srinivasan, "Home management is the mental process for using what you have i.e. resources to get what you want."

Nickel and Dorsey defined Home Management as planning, controlling and evaluating the use of family's resources for the purpose of attaining family goals.



*Fig. 2.1 : Home Management*

### ➤ **Purpose of home management**

As soon as the family is established and the persons begin working together for a common purpose, a need arises for the development of plan of action for delegation of responsibilities and organizing the use of family resources. So, management has become an essential component of family living because family has multiple goals and relatively limited resources. The resources may be required for accomplishing more than one goal, so choices need to be made. For example money is required for buying a car as well as for owing a home. Family has to make a choice between the two because of limited money in hand. Management is also required to identify and deal with problems which emerge from and change in family from time to time.

Secondly, modern families have greater mobility, comforts due to technological advances but there is weakening of joint family system due to which there is decrease in human resources and family income. In order to get maximum returns from its resources, the present day families have to consider their needs carefully and make wise choices. In modern families the management is required not only for the intelligent use of resources but for the all round development of family members and their welfare. For this participation of all family members in decision making is essential. e.g. if parents want their children should pursue higher education they must involve their children in decision making about the education and careers for best results instead of forcing a particular choice on them. So systematic knowledge of home management is needed by the family. Besides home management also teaches how to think, plan and carry out work without undue fatigue and loss of time, money and energy. Hence, the study of home management has developed into an important discipline in recent times.

➤ **Motivational factors of management (Values, Goals, Standards)**

The values, goals and standards forms the basis that motivate the family to make decisions and choices. They help them to achieve their desired goals in life.

- (A) **Values:** Values refer to personal qualities considered by one as desirable and worthy. The various sources from which an individual acquires his values are his family, society, school, friends and other people to whom he contacts. The culture, traditions, religion as well as norms of society have impact on values. Values influence all decisions and managerial activities of family as they form the basis of what one considers right, desirable or worthwhile.

Values are motivating factors in human behavior. They give meaning to life. They provide a basis for judgment, discrimination, analysis and make intelligent choices possible between alternatives. They grow out of human interests and desires.

The values may be of different types like moral values, aesthetic value, intrinsic value, instrumental value and ethical value.

- (i) Honesty, punctuality, integrity, faithfulness are examples of moral values.
- (ii) Appreciation of artistic qualities of portrait or beauty of a scenery are the aesthetic values,
- (iii) Love, affection, comfort and beauty are intrinsic values i.e. something that comes from within. The sunset we admire, music we enjoy are all intrinsic values.
- (iv) Interest in studies and skill in handcrafts are instrumental values as they are instruments for achieving success and happiness. Instrumental value is a means of attaining other values or goals. The items which are produced technologically are instrumental to attain other values e.g. production of A.C. or washing machine is a means to attain the value of comfort and health.
- (v) Some values are both intrinsic and instrumental. They are in some ways good for themselves and in some ways are means to other values e.g. playing a game is an intrinsic value as it is good for enjoyment and passing leisure time. It is also instrumental as it helps to maintain good physique and health.



#### ACTIVITY

- (i) List down your intrinsic values
- (ii) List the items you want to buy during next month and compare these with your listed values.

**(B) Goals:** Why am I here and where I have to reach? You often ask such questions. Your goals can answer these questions. Now question arises what is a goal?

A goal is a aim, an ambition you wish to attain. All prominent men and women set goals for themselves and work hard to achieve these. But sometimes, you may have to change you aim if it seems unobtainable due to lack of some capabilities or any disease e.g. one might have aim to become a national athlete player but because of some accident he/she is unable to achieve that aim and he/she has to set other goal for satisfaction in life. Goals are of two types;

- (i) **Long Term Goals:** These goals are achieved after a long period of time. Long term goals are set first but their achievement may be very late. For example getting a graduation degree in home science is a long term goal. For achieving this goal many short term goals may have to be achieved.
- (ii) **Short Term Goals:** These are achieved in short period. Many of these are means for achieving long term goals. Examples of some of the short term goals towards graduation are; attending classes carefully, getting good marks in exams, keeping positive attitude towards study etc. You will have to manage your time, energy and money properly in order to reach your above mentioned short term goals to accomplish your long term goal of becoming home science graduate.

#### ACTIVITY

Write down goals you wish to accomplish in next two years. Analyze whether these are achievable or not.

**(C) Standards:** Standards are more specific than goals or values and are related to some particular thing or area e.g. standard of dress, food etc. According to cooper -Standards may be defined as the mental picture of something which is considered essential and necessary to make the life tolerable

If a standard is achieved there is satisfaction but if it is not achieved there is dissatisfaction. Standards are of two types i.e.

- (i) **Conventional standards:** These standards are fixed. They are traditional and are accepted by the community at large or by a social group within it. Examples of such standards in a household are absolute cleaning of floors, utensils, crease free furnishings etc.
- (ii) **Flexible standards:** These standards can be changed to suit different situations. They give greater freedom of choice. These are not widely accepted by the community. But due to resource constraints one might adopt flexible standards e.g. when a homemaker is a working women, she may skip table setting and ironing night dresses as done in conventional manner.

### ➤ **Home management process**

The home management process is made up of a series of managerial activities leading to fulfillment of goals. The home management process involves four basic steps;

- (A) Planning to achieve performance
  - (B) Organizing for performance
  - (C) Controlling the plan as it is being carried out
  - (D) Evaluating the results in the light of family goals.
- (A) **Planning:** Planning is the first step in the management process. It provides the basis for other managerial activities; organizing, controlling and evaluating. Making decisions about family activities, chalking out the ways and means of arranging and utilizing resources are part of planning process. Planning also involves problem solving, setting priorities and allocating duties to various members of family. Plan is a forecast of some future action. In making plans decisions must be made as to;
- (i) What actions are necessary to achieve the desired goals?
  - (ii) Why these actions are necessary to achieve goals?
  - (iii) Who is responsible for each action?
  - (iv) When, where and how each action will take place?

The planner has to choose the goals to be achieved; and search for available alternatives, finally decide the course of action. While allocating duties to various family members, one should create sufficient interest in members about their work, take into account their abilities, skills and aptitude.

Let us understand planning through an example. Suppose your class has to arrange a farewell party for outgoing class. Your class monitor has to define this goal to her all classmates. Then there will be a decision about course of action i.e. actions necessary for arranging successful party, funds required for party, entertainment programmes, eatables, venue etc. Beside this, manager has to decide about;

- (a) Who is responsible for each action i.e. funds collection, party invitation, venue decoration, party games, eatables, gift purchase etc.
- (b) When i.e. date on which party is to be organized, when funds are to be collected, from where eatables and gifts are to be purchased, where to conduct the party and lastly how the function will be organized, what will be the sequence of various items, how eatables will be served and gifts be distributed. So in this activity, co-operation of all your classmates is required and success and enjoyment of party will depend on proper execution of your plan.

In this way, every one needs to plan. So in order to make your plan successful, it should be

- É Simple
- É Action oriented
- É Flexible enough to meet necessary changes
- É Realistic in use of resources
- É Motivating and meet the needs of all group/ family members

Besides, good communication among family members is necessary for co-ordination and to make plans run smoothly.

- (B) **Organizing:** When two or more persons combine their efforts to establish their home, an understanding of how the work and responsibilities to be shared is necessary. Organizing consists of dividing and grouping of activities and assigning them to members of a group. Good relationships should also be established between the group members so that their efforts are coordinated and directed towards family goals. So organizing may be defined as the process of establishing proper relationship among work, people, other resources and channeling authority and responsibility. Referring to previous example of planning for organizing a farewell party, while organizing, groups of students having similar interest, nature, skill etc. need to be formed for various

activities and responsibilities be assigned to each group member for proper utilization of resources and proper execution of plan.

- (C) **Controlling:** It is the activity that aids in putting and keeping the plan in action. It involves careful observation of performance. It is the checking of work and performance to be sure that work is being done in the planned direction. It includes making changes when necessary for plan in action. Such checking may concern the quality of work, costs in terms of either time, money or the feeling of satisfaction of group members. So, controlling involves a thorough check of available resources, their use and implementation of decisions.

In example of arranging farewell party, manager has to check that all the activities are being performed within planned framework, within allotted time and money. If budget for some activities is being exceeded, then manager has to think about other alternatives e.g. if market rates of gifts are higher as compared to money allotted, then group has to think of some other gift items which can be purchased as per their resources and satisfaction. Controlling involves initiating and sustaining the course of action and ensuring that work is being done according to plan and resources allotted and lastly adjusting the plan if necessary. So, controlling is meant for making the plan work with individual or joint effort. It calls for guiding and directing self or others to carry through plan.

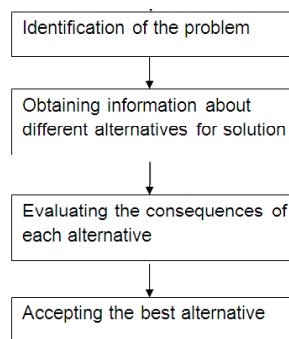
- (D) **Evaluating:** This is the last step in management process. Its aim is to assess the success of plan. The purpose of evaluation is mainly to see what has been achieved and what were the factors which have affected the plan. It is looking back over what has been done and judging the results with respect to the goals. Thus it involves a complete review of what has already taken place with a view towards better management in the future. After proper evaluation many mistakes can be avoided and guidelines are provided for future plans.

All the managerial activities i.e. planning, organizing, controlling and evaluating are related to each other. They flow along a sequence. They are not separate and distinct from each other. They form a cycle of action from planning to evaluating and back to planning. Planning is done for future. Organizing and controlling is for plan in action and evaluation is done after completion of plan. New plans are made on the basis of evaluation.

## ➤ **Decision making**

Decision making forms the core or central part of the management process. It influences the whole management process viz. planning, organizing, controlling and evaluating. Decisions have to be made when existing conditions have changed and problems have arisen. According to Nickell and Dorsey, "Decision making is the process of selecting a course of action from a number of possible alternatives for solving a problem".

**Steps in decision making:** The decision making process consists of following steps;



*Fig. 2.2 : Decision Making*

- (A) **Identification of problem:** The problem must be identified and understood in detail. As a doctor require a lot of information before diagnosis and treatment of disease of a patient. Similarly a home manager has to analyze the problem with relevant information in order to solve it. For example, a family may have problem of paying monthly house rent, the homemaker thinks house rent is quite high and family income is less. In fact, it may be due to improper use of money, impulsive buying, outdoor eating and lack of planning the use of money income available to the family. So all family members must think and identify the problem carefully.
- (B) **Formulation of alternatives and obtaining information about alternatives:** After identifying the problem or situation, the second logical step is to obtain relevant information about alternatives and to formulate possible course of action. This would enable you to find best solution. For example in above mentioned situation of difficulty in paying house rent, a family may decide to reduce their food expenditure and seek following alternatives;
- (i) Substitute costly food items with less expensive items e.g. using peanuts in place of almonds

- (ii) Control the quantity to be consumed
  - (iii) Cook food at home without any paid help.
  - (iv) Get food from community kitchen
- (C) **Evaluating the consequences of each alternative:** After identifying the alternatives, evaluation of possible alternatives needs to be done as per your goals, values and standards. For example for reducing food expenditure, four alternatives were identified. The first alternatives of substituting less expensive food items may not be acceptable to all family members because they are used to a particular standard and taste. Controlling quantity would definitely cut down cost, but young family members may remain hungry and may cause frustration. Getting the food from community kitchen may not be liked by all family members as it does not offer any variety. The only acceptable alternative may be to eliminate paid help and family member to participate in preparing food at home.
- (D) **Accepting the best alternative:** After thinking through different alternatives, family should finally choose and accept best alternative which meets the need of the family and household activities are carried out in most satisfactorily manner.

**ACTIVITY**

Write down who takes decisions in your family regarding following household chores

- (i) Purchase of grocery
- (ii) Payment of fees
- (iii) Purchase of property
- (iv) Education of Children

### ➤ **Qualities of an efficient home manager**

Each family member should be involved in decisions about major household activity for healthy relationship and happy family life. The success of the household and the welfare of its members both at home and in society depend on efficient management of resources and timely decision making. Running a home well is a skilled job. It requires series of decision making and management. Everyone has to share responsibilities in household, particularly in those families, where mother is employed. Earlier a number of household tasks which used to be done by lady of the house only, have to be distributed among all family members of working women. So now everyone in a family is home

manager or home maker and has to be involved in managing family resources for achieving family goals, happiness, security and prosperity. In order to manage home properly, a good home manager should have following qualities;

- (A) **Intelligence:** A home manager should use his/her intelligence to solve problems of everyday life. In addition she/he should be observant, understanding, thoughtful and possess a good memory. A good memory is a great asset as it will help in using previously acquired knowledge for solving new problems.
- (B) **Enthusiasm:** An enthusiastic manager can take interest and initiative in many aspects of household activities and develop enthusiasm in other family members.
- (C) **Sympathy:** Manager should be sympathetic and recognize individual needs of all family members. This will promote more harmonious living.
- (D) **Imagination:** Imagination promotes ability to visualize situations, make plans and foresee the results before plans are actually carried out. Imagination helps to avoid waste or undue expense. So good manager must be creative and imaginative.
- (E) **Perseverance:** This quality is a combination of courage and patience. It is this quality which provides the home manager courage to face different situations and act accordingly.
- (F) **Adaptability:** The ability to change according to circumstances in life is an essential quality of home manager for successful and happy family living.
- (G) **Self control:** Home manager should be able to take things as they come and even in difficult situations should not get discouraged, worried or frustrated as these will have an adverse effect on the whole family and also on her own health.
- (H) **Resourceful:** A resource full home manager is able to overcome her family problems tactfully e.g. when money income is less, she/he substitute cheaper food items to ensure adequate nutrition for family.
- (I) **Ability to communicate:** Management involves communication with family members. For putting plans into action, home manager should be able to communicate her ideas effectively and sensibly in a meaningful way.

With all the above qualities, a home manager can achieve the goal of all round development and satisfaction of each family member in her household.

### THINGS TO REMEMBER

- É Management is the mental process for using family resources for the purpose of attaining family goals.
- É Home management teaches how to think, plan and carry out work without undue fatigue and loss of time/energy.
- É The management process involves planning, organizing, controlling and evaluating.
- É Motivational factors of management are values, goals and standards.
- É Decision making is at the heart of management and influences the whole management process.
- É Step of decision making are;
  - (i) Identification of the problem
  - (ii) Formulation of different alternatives and obtaining information about each alternative.
  - (iii) Evaluation of consequences of each alternative.
  - (iv) Accepting the best alternative.
- É Intelligence, enthusiasm, sympathy, imagination, perseverance, adaptability, self control, resourcefulness and ability to communicate are the basic qualities required for an efficient home manager.

### QUESTION BANK

#### Objective types questions

1. Home Management is the \_\_\_\_\_ process for using what you have to get what you want.
2. Home management process involves \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ the use of family resources.
3. \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ are motivation factors of management.
4. Decision making is the \_\_\_\_\_ of management.



5. Management process involves:
  - (a) Two basic steps
  - (b) Three basic steps
  - (c) Four basic steps
  - (d) Five basic steps
6. The last step of management
  - (a) Planning
  - (b) Controlling
  - (c) Evaluating
  - (d) None of these
7. The activity that aids in putting and keeping the plan in action:
  - (a) Organization
  - (b) Controlling
  - (c) Planning
  - (d) Record keeping
8. Motivating factors in human behaviours are:
  - (a) Goals
  - (b) Decisions
  - (c) Values
  - (d) Decision making
9. These standards can be changed to suit different situations.
  - (a) Conventional Standards
  - (b) Flexible Standards
  - (c) Both a and b
  - (d) Non Conventional Standards
10. Home management deals with the practical applications of principles of management at home. true/false
11. Only goals form the basis that motivate the family to makes decisions and choices. true/false
12. After thinking through different alternatives, family should finally choose and accept the best alternate. true/false
13. Define home management.
14. What is planning?
15. Define values.
16. What is the need of evaluation?

#### **Short answer type questions**

1. Differentiate between organizing and controlling.
2. What are the steps involved in decision making?
3. What are various cahractistics of a successful plan?
4. Discuss in brief about different types of goals.

#### **Long answer type questions**

1. Explain the purpose of home management.
2. According to you what are the desirable qualities of a home manager?
3. Write a plan for arranging a birthday party of you younger brother.

\*\*\*\*\*

## MANAGEMENT OF FAMILY RESOURCES

Every family has certain needs such as need for food, clothing and shelter etc. and it strives for the satisfaction of these. Fulfillment of these needs depend upon the availability of resources to the family. After reading this chapter you will be able to understand :

- **Meaning of a resource**
- **Types of resources**
- **Characteristics of resources**
- **Management of various resources**
- **Time and energy management**
- **Methods of work simplification**

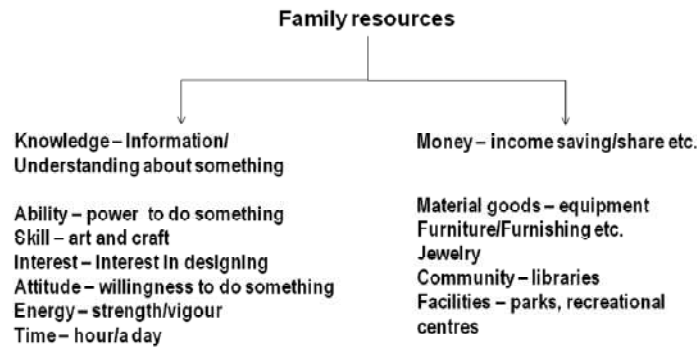
### ➤ **Meaning of a resource**

The dictionary meaning of the word resource is a 'means of satisfying wants'. In a family a resource is anything that helps in meeting the needs of its members. Resources are defined as those material and human attributes that satisfy our needs/wants.

### ➤ **Types of resources**

Resources can be divided into two categories; (A) human resources (B) non-human/material resources

- (A) **Human resources:** These include those resources which are inherited in person i.e. they cannot be separated from oneself. They are part of person's personality. Time, energy, attitude, skill, interest, knowledge and abilities are the examples of human resources.
- (B) **Non-human resources:** Non-human resources are also known as material resources. Non-human resources in general are material goods, money and community resources. These comprise of one's personal possessions, family possessions and also the resources available with one's community, state and nation, i.e., libraries, parks and recreational centres.



*Fig. 3.1 : Family Resources*

### ➤ **Characteristics of resources**

Both human and non-human resources have some common characteristics;

- (A) **Their availability to families varies:** A family may have skill and money both but another family may have only money. The supply of money to families also vary.
- (B) **Resources are useful:** All resources are useful and help in satisfying our needs e.g.
  - (i) A house provides shelter
  - (ii) The ability to make paintings helps in earning money.
- (C) **Resources are limited in supply:** Every resource is limited in supply e.g. we have only 24 hours a day. Similarly our salary is also fixed, other resources like fuel, water, electricity etc. all are in limited supply. To get maximum satisfaction, we have to use our resources wisely.
- (D) **Resources are inter-related:** Resources are seldom used singly. These are used in combination for accomplishing any work, time, money, energy and skill is required.
- (E) **Resources have alternative uses:** Most resources have alternative uses e.g. one can use family saving for purchase of house, car or any other equipment etc.
- (F) **Resources can be substituted:** A home manager can substitute a resource for a scarce resource e.g. if a homemaker has more time than money. She herself does household work to save money.
- (G) **Resources of family can be accumulated:** Money can be saved, skill of family members can be improved.

- (H) **Resources can be saved or wasted:** Proper planning can help in saving time and energy in doing household work, similarly by stitching clothes at home instead of giving to tailor one can save money.
- (I) **Managerial process is applicable to all resources:** To achieve family goals i.e. use of all resources require planning, organizing, controlling as evaluation.

### ➤ **Management of various resources**

Proper management of time, energy and money is the basis of home management. Through efficient use of these resources, it is possible to achieve our family's goals. Let us learn about the ways for successful management of time and energy.

Time and energy are two important non-material resources of a family. They cannot be accumulated. Proper planning helps in saving of time/energy, whereas wrong planning leads to wastage of these two resources and frustration. Following steps will help you in right management of your time and energy;

- (A) Set goals and priorities clarify your objectives and make sure that you are getting what you really want out of life.
- (B) Focus on objectives not on activities.
- (C) Set a realistic dead line for your goals.
- (D) Organize household work into daily, weekly and seasonal chores.
- (E) Similarly organize outside work ó shopping visits etc.
- (F) Organize work place and keep everything in its proper place to avoid needless searching for misplaced items.
- (G) Remove clutter as it wastes time
- (H) Use time and labour saving devices e.g. peeler, chopping board, pressure cooker etc. to save time and energy.
- (I) Delegate responsibilities to other family members and involve all family members in household work according to their interests and abilities.
- (J) Do only that much work daily as you are able to do in a day.
- (K) Take rest periods in between work to increase your efficiency.
- (L) Develop the habit of finishing what you start.
- (M) Do not jump from one thing to another, leaving unfinished tasks behind you.
- (N) Make better time management a daily habits work according to set objectives. Resist your impulses to do unscheduled tasks.

- (O) Review your activities and analyze every activity in terms of your objectives and eliminate time-waster from your daily/weekly routine.

➤ **Time and energy management**

Time and energy are the most precious human resources. Learning to manage these efficiently in your youth will help you obtain your goals at different stages in your life. Your goals cannot be reached without some use of these two resources. For example if you want to design your own dress you will have to spend your time and energy to develop this skill. Proper management of time and energy is essential for maintaining balance between your studies and goal of dress designing. Your values and attitude determines how do you use your resources. In previous chapter, you have learnt that values are those things which are important to you where as attitudes are the ways you feel towards someone or something. So the choices you make concerning use of your time and energy are made on the basis of what is important to you. Use of time reflects your value e.g. if you do not take proper meals and rest, it shows that you place less value on good health. Your values determine what you choose to do and these choices influence your behavior and success, which help in shaping your attitudes. This is the right age of your life for weighing your values and evaluating your attitudes for the efficient use of two most important human resources. i.e. time and energy.

These two resources are very closely related to each other. In all your routine activities i.e. bathing, eating, dressing up for school, going to school, studying , playing and shopping etc, both time and energy are required. Using the right amount of energy and feeling less tired while doing any activity saves time and energy for other activities. It is important to learn how to perform our daily activities so that we are able to accomplish maximum with minimum effort/time and get as much pleasure as possible.

**Let us understand in detail about following components related to time and energy management.**

Objective of time management

Meaning of time plan

Steps in making time plan

Points to be kept in mind while preparing time plan

Meaning of energy management

Fatigue and ways for reducing fatigue

Methods of work simplification

**Objectives of time management :** Time is a resource which all human beings have in the same amount. How they use it make or mar their lives. Everybody has twenty four hours in a day for routine living, work, rest and leisure. This time can be packed of worthy, exciting, pleasant and profitable experiences or it can be just full of dull boring and uninteresting activities. Time can be utilized to the maximum or it can

be wasted. Efficient management of time is required to enjoy life, remain relaxed and productive. Inefficient management of time leaves one tense and worried. Those who do not care for time management are likely to be less productive and always remain in a hurry to catch up their jobs. So the objective of time management is to attain the most of the individual and family goals. Management of time allows one to complete all the required jobs within a given time frame. The management of time involves making of time plans and their implementation. Careful thought out time plans are useful tools in saving time and energy and relieving tensions. So you must prepare a time plan and check your progress for achieving your goals and satisfaction in life.

Let us now understand what is a time plan and how to prepare a workable time plan?

**Time plan:** A time plan may be defined as an advance plan of the activities to be performed in a given period of time (Table 1). It can be prepared for a day, a week, a month or a year. Time plan enables you to finish your routine jobs quickly so that you have sufficient time for read and other activities of your choice.

#### **Steps in making Time Plan**

Follow the below mentioned step while making time plan.

- (i) **Analyze your priorities:** A careful analysis of priorities helps to eliminate unnecessaries. Now question arises what is a priority.  
**‘Priority’** is top value item or activity whereas an unnecessary is something which is not very important.  
You will discover your priorities by analyzing your activities, needs and desires. List all activities you feel are important to you. Also indicate which are most important and least important. For example if getting good marks in exams is your priority, you will keep more time for homework and extra studies rather than watching a T.V. serial. On the other hand if watching a particular T.V, programme is important to you, then you will choose to finish your home work hurriedly in some other time.
- (ii) List all the activities which are to be carried by the family. These activities can be of three types i.e., **daily activities** like cooking, going to school/office, bathing, dressing up, home cleaning , washing utensils doing home work etc. **Weekly activities;** These include changing bed covers, dusting,

washing, visiting relatives friends etc. And **seasonal activities** are festival celebrations, painting/white washing of home, storing winter items, taking out summer beddings and clothing, grain storage etc.

- (iii) First make up plan for daily activities, after this you will get an idea of time for other activities. After completing daily and routine tasks, plan weekly, seasonal and other social tasks in free time available from daily plans.
- (iv) Decide approximately how much time each activity will require. Try to be realistic and provide enough time for each activity.
- (v) Arrange the activities in the sequence in which they are to be performed
- (vi) Indicate those things which can be left out if time is short as well as activities you would like to include if you have extra time.
- (vii) Group together related activities e.g. all activities related to preparation and serving of meals can be grouped together. Likewise shopping of vegetables and milk, bank and post office works can be grouped together.
- (viii) Check the final time plan to see all activities are accommodated. In case there is shortage of time for some activities then substitute least important activities with relatively important ones or involve other family members to carry out the plan.
- (ix) Control and evaluate the plan. It should be workable. It should not be too rigid as rigid plan will limit your pleasure e.g. if you plan to take dinner at 8:00 PM sharp, in case of any emergency it gets late by half an hour, your rigidity about fixed dinner time disappoint you and you will not enjoy your meal.

**Points to be kept in mind while making time plan:** One should keep following points in mind while making time plan;

- (i) Time for a particular activity will depend on availability or non-availability of help from other family members e.g. if some help is available to homemaker, she can get some free time for herself otherwise she will require more time for household activities.

- (ii) A time plan should follow sequential pattern, allow first work should be undertaken first. e.g. you should comb your hair after bathing, if you do it other way round, there may be need to combing again. So to accomplish the work in less time, perform the activity systematically.
- (iii) During certain times in a day, more activities are to be performed e.g. in working women household in the morning she has to prepare tiffin for her kids, husband, prepare breakfast, help children in dressing up and getting ready for their school/college, she has to finish all the activities in a short span, this is called **‘peak load’ period**. These periods may also occur during weekends, during monthly and seasonal cleaning. So while time planning one should keep in mind **‘peak loads’** and provide sufficient spacing between peak load periods.
- (iv) In time plan there should be provision for **‘rest period’** also. **‘Rest periods’** especially between peak load periods are vital for efficiency of worker. Rest period between the day’s work help in preventing excessive fatigue and in increasing efficiency. Besides, provision for some leisure time must also be kept in mind while making time plan. In leisure time one can relax and is free from any work or duty. The leisure time activities include listening to music, T.V. watching, playing indoor/outdoor games, painting, knitting, stitching etc.
- (v) Time plan should be flexible and can easily modified to meet any emergency like illness, arrival of guests, attending some social functions etc.

Time management is a skill, begin it now to reach your goals.

#### ACTIVITY

Prepare a weekly time plan for yourself and evaluate the time utilized by you during the last week.



**Table I : Sample time plan for class XI student**

Time	Activity
5:30 a.m.	É Toilet
5:45	É Study
6:45	É Dressing É Pack school bag É Breakfast
7:30	É Catch school bus
7:50	É School hours
2:35 p.m.	
3:00	É Return home, wash
3:15	É Lunch
3:30	É Rest
4:30	É Recreation
5:30	É Study
6:30	É Help with house work
7:00	É Study
8:30	É Dinner
9:00	É Study
9:45	É To bed

### ➤ **Energy management**

Sometimes you have a great energy and sometimes you have less energy than required. Learning to manage your energy can help you to increase the number of days when you will have an abundance of energy. Before learning the management of energy let us first understand what is energy and how much energy is required for different types of household activities.

**Energy** refers to our capacity to work. Energy is required for performing all types of activities. Our body consumes energy even while we resting. The amount of energy needed to carry out an activity is determined in term of oxygen consumed by the body per minute. It is expressed in calories consumed per minute per kilogram body weight (Cal/kg/min) and is compared with the minimum requirement of the body when resting. The extra energy required to perform the task than resting level is termed as 'energy cost'.

On the basis of energy required to perform the work, it has been categorized as light, moderate or heavy (Table II).

- (A) **Light work:** Light works require 100 per cent more energy than energy consumed while resting on a chair. Knitting, hemming, sewing by hands, crotcheting, chopping vegetables etc. are included in light work.
- (B) **Moderate work:** Moderate work require 100-150 percent more energy than energy consumed while resting in a chair. Moderate household tasks are polishing furniture, ironing, kneading dough, climbing stairs etc.
- (C) **Heavy/strenuous works:** These tasks require 150-200 per cent more energy than energy required at resting stage. Heavy household tasks include; scrubbing floor, bed-making, climbing stair case with heavy suitcase.

**Table II : Energy requirement for common household tasks**

Light	Moderate	Heavy
1.4-2 cal/min (100% additional energy)	2-3. cal/min (100-150% additional energy)	3.5-4.5 cal/min (150-200% additional energy)
Hemming, sewing by hand Knitting Crocheting Sweeping kitchen floor Dusting furniture Chopping vegetables	Polishing furniture Ironing Kneading dough Hanging up clothes From a basket Climbing stairs	Scrubbing floor Grinding masala Hanging up clothes from the floor Lifting heavy objects or children Bedmaking Climbing stairs with heavy suitcase

With an understanding of different types of work, you can plan and manage your energy more effectively by alternating light, moderate and heavy work. Energy management means utilization of one's energy to perform the work efficiently.

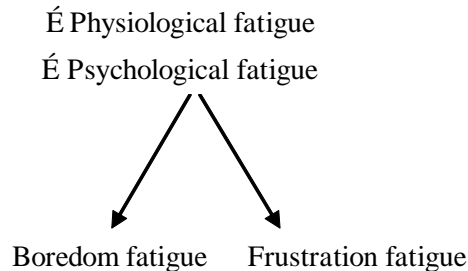
**Definition of energy management:** It can be defined as minimizing the expenditure of energy in daily activities without affecting the quality of work and the person does not feel fatigued after finishing the task.

As compared to time, management of energy is more difficult and complex. The time required to complete an activity can be assessed but it is difficult to assess the energy required to accomplish a task. As availability of energy varies according to physical and mental health of a person. Besides, heredity and

environment also affect the amount of energy available to any individual. Some persons get tired soon some require more rest periods to overcome fatigue.

### **Fatigue and ways for reducing fatigue**

**Fatigue** or tiredness results normally if the activity taken is beyond one's capacity. It can be defined as extreme physical and mental tiredness. Fatigue is mainly of two types:



**Physiological fatigue:** Energy is stored in the form of glycogen in the body. During muscular activity, the oxygen you breathe combines with glycogen to give energy. During hectic activity, the demand for oxygen increases, at the same time level of lactic acid and carbon dioxide also increases in blood, which results in fatigue.

#### **Ways to reduce physiological fatigue:**

Physiological fatigue can be reduced by following ways;

- (i) by providing short periods of rests in between heavy activities. i.e. why tea breaks/lunch breaks are provided in school, colleges and offices.
- (ii) Through deep breathing oxygen replaces the waste materials and the individuals feel refreshed.
- (iii) by adequate planning of the sequence of daily activities.
- (iv) by using time and labour saving devices like peeler, vegetable chopper, beater, washing machine, pressure cooker etc.
- (v) by learning skills for performing household activities.
- (vi) by using correct body posture and learning work simplification techniques.
- (vii) by taking adequate nutrition and healthcare i.e. by increasing intake of iron, proteins and vitamins in diet which help in development of muscles and oxygen supply.

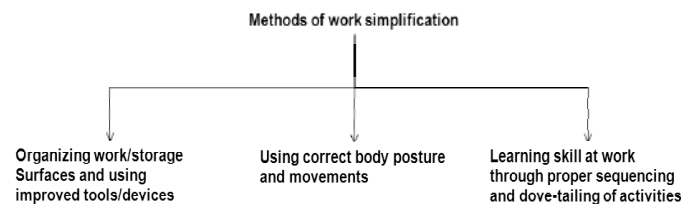
**Psychological fatigue:** Psychological fatigue is concerned with the mental attitude of the worker. It results because of boredom and

frustration. Monotonous, disinteresting, repetitive and undesirable work leads to boredom fatigue. Frustration fatigue results when there is no job satisfaction and failure to achieve goal. Besides, worries, lack of motivation and appreciation fault in equipment also leads to frustration.

### **Ways to reduce Psychological fatigue:**

Psychological fatigue can be reduced by :

- (i) Making work more interesting
- (ii) Providing proper tools/equipment and work environment
- (iii) Motivating and appreciating workers
- (iv) Avoiding interruptions and unexpected demands
- (v) Including recreation in the work plan
- (vi) Setting a number of small goals
- (vii) Achieving one goal after the other.
- (viii) Allowing a free time in daily work schedule.



*Fig. 3.2 : Methods of Work Simplification*

### ➤ **Methods of work simplification**

Work simplification can be defined as finding the simplest, easiest and quickest method of doing work. It aims at accomplishing more work within a given time and energy. Work can be simplified by the following methods.

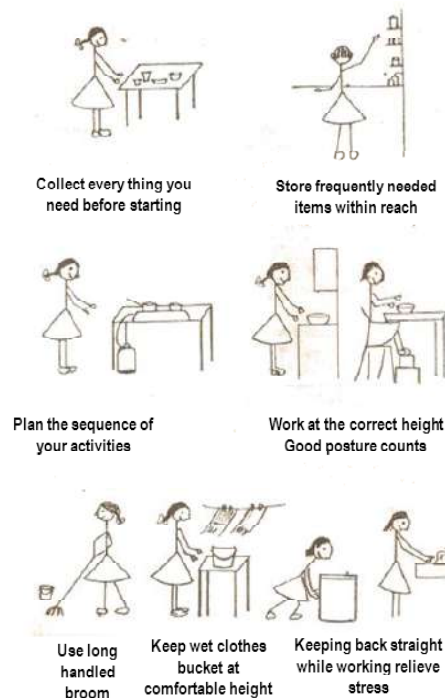
#### **(i) Organising of work/storage surfaces and using improved tools/devices:**

This includes re-arranging kitchen tools/ equipment, organizing storage spaces, ensuring that height and width of work space is suitable to user and adding labour saving devices such as blender, mixer, food processor, chopping board, peeler etc. it is also necessary that all the labour saving devices should be placed within easy reach of worker, only then these can be used regularly and comfortably e.g. if electric mixer is placed on a high shelf, it may not be used frequently as lot of care and stretching is required of keeping it on work surface. So all the equipment should be placed in such a manner so that these are easy to see, grasp, handle and do not require undue bending and stretching of body.

Besides, work area should be attractive and well organized storage containers should be transparent or labeled so that you do not have to waste time for hunting the ingredients. Storage and work area should be neat & clean, airy and well lit. You enjoy working such an environment and work is finished without stress and fatigue.

**(ii) Using correct body posture and movement**

Your lot of time and energy can be saved by eliminating unnecessary and jerky movements. Use of tray to carry cutlery i.e. forks, spoons, knives and crockery i.e., plates, glasses, bowls for laying table instead of carrying each item individually. This way you can save time as well as energy. Similarly by using right body posture, you can save time and energy. For example if you stand and cook, you get less tired than when you sit and cook, as getting up from a sitting posture is much more tiring than moving while standing. Similarly pushing is always easier than pulling. Keeping your back straight while working save time and energy. To keep your back straight and relieve stress, use a long handled broom or mop for cleaning floors. While drying clothes, keep the clothe bucket at comfortable height so as to avoid bending each time you pick up a cloth (Fig. 3.3).



*Fig. 3.3: Correct body postures and work methods*

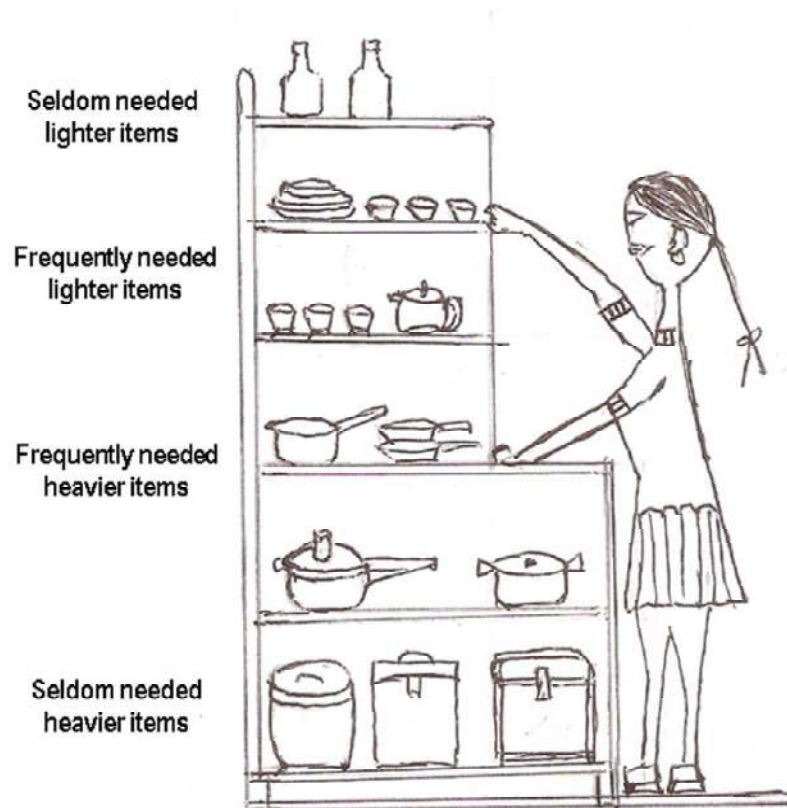
**(iii) Learning or perfecting work skill through proper sequencing and dovetailing of activities**

If you practice and gain perfection in work, you will require less time and energy in completing the task. Besides you will be able to get better product. By proper sequencing, work can be simplified e.g. all chopping can be done together to save on repeated washing of chopping board, peeler and knife etc. similarly dovetailing also saves time and energy. Dovetailing means combining the job in to groups e.g. pre-cooking and supervising children school work can be combined.

So, by using these simple methods, work can be simplified and accomplished satisfactorily without and stress.

<b>Some important hints for time and energy management:</b>	
É	Use a time plan as guide for wise utilization of time.
É	Make a list of things you need to do.
É	Complete one job before beginning another
É	Eliminate any unnecessary steps in routine tasks
É	Have a fixed place for all your belongings and keep them in place after use.
É	Conserve your energy by using your time wisely
É	Conserve your time by having enough energy to do the task you need to do
<b>Some guidelines for proper storage of household items:</b>	
É	First of all out and separate the items related to activity centre.
É	Arrange items according to size and dimension.
É	Keep sufficient clearance space for picking and putting the various items.
É	Place frequently used items within easy and safe reach.
É	Place various parts of each equipment together e.g. weight of pressure cooker and gasket should be stored with handle after cleaning otherwise lot of time is wasted in searching different items.

By following the above mentioned simple tips for organizing work surface and storage you can save lot of your energy act time.



*Fig. 3.4 : Storing at Convenient Height*

### THINGS TO REMEMBER

- É Time and energy are very closely related to each other and need to be conserved.
- É Management of time allows one to complete the task within given frame of time.
- É Time plan enables you finish your routine jobs quickly
- É Steps in making time plan are;
  - Analyze your priorities
  - List all activities to be carried out in a given time
  - Estimate time required for each activity
  - Group together related activities
  - Control and evaluate your time plan
  - Help of family members, sequencing of tasks, rest, leisure time and flexibility help in success of time plan.
- É Energy management:
  - Energy is a capacity to do a task
  - Household activities can be classified as light, moderate and heavy
  - Energy can be managed by alternating moderate work with light work and reducing fatigue
  - Fatigue is feeling of tiredness and is of two types i.e. physiological and psychological. Rest period should be provided to reduce fatigue
  - Work can be simplified by proper organization of work spaces and acquiring time and labour saving devices, by adopting proper body posture and movement and by dovetailing proper sequencing of activities.



### QUESTION BANK

#### Objective types questions :

1. Fulfillment of family needs depend upon the availability of \_\_\_\_\_ to the family.
2. Means of satisfying wants is called a \_\_\_\_\_.
3. \_\_\_\_\_ and \_\_\_\_\_ are two important non material resources of a family.
4. Capacity to do a work is called \_\_\_\_\_.
5. The simplest, easiest and quickest method of doing a work is called \_\_\_\_\_.
6. Time and energy are
  - (a) Non-human resources
  - (b) Human resources
  - (c) Both a and b
  - (d) None of these
7. What can be reduced by providing short period of rests in between heavy activities
  - (a) Psychological fatigue
  - (b) Physiological fatigue
  - (c) Both a and b
  - (d) Time taken to complete the work
8. Work can be simplified by \_\_\_\_\_
  - (a) Proper organization of work spaces
  - (b) Acquiring time and labour saving devices
  - (c) Both a and b
  - (d) Taking rest periods in between
9. Time is Non human resource. true/false
10. Resources can not be substituted. true/false
11. Energy is measured in grams/kg. true/false
12. What is meant by time management?
13. Define time plan.
14. Define fatigue.

#### Short answer type questions

1. Discuss in brief about various ways of work simplification.
2. How can you manage energy for common household tasks?

#### Long answer type questions

1. Differentiate between physiological and psychological fatigue and explain about methods of reducing fatigue.
2. Organization of work centres aids in saving time and energy comment.

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## MONEY MANAGEMENT

Money is the most important material resource of a family. It has the exchange power. With the money, we can buy goods and services for the family. But, money income of the family is often limited and everyone finds it in short supply, therefore it has to be managed. In this chapter, you will read and understand about:

- **Meaning of money management**
- **Steps in money management**
- **Methods of supplementing family income**
- **Wise buying and saving practices**
- **Meaning of saving and investment**
- **Guidelines for saving and investment**

### ➤ **Meaning of money management**

Money management is the planned and controlled use of family income. The income needs to be spent in such a way that money is available to meet the family expenditure throughout the month. In other words, process of distributing money over various items of expenditure is called money management.

### ➤ **Steps in money management**

The effective management of money involves following steps;

- A. Planning the use of family income
- B. Controlling the family income.
- A. **Planning the use of family income:** To obtain maximum from the money available, family has to prepare a expenditure plan. While planning, family's need are ranked according to their priority (e.g. food, shelter and clothing are the most important needs and accorded top priority). Then income is assessed and allocated to each need. While preparing spending plan, family should keep some part of money as saving to ensure financial security and well-being in future.

#### **B. Controlling the family income**

Families can control and keep a check on expenditure in two ways:

- (i) Make sure that your money is not wasted. For example, buy just the right quantity that is required by the family and avoid wastage.

- (ii) Make use of your time, energy, skill and knowledge to cut your expenses. e.g. skills and knowledge can be used for production of household items such as dress designing, decorative items etc. rather than purchasing from market for reducing expenditure.

The main objective of money management is all round development of the family members, enhancing their happiness and health by making best use of family income. To achieve these objectives, the family should prepare budget and keep financial records of expenditure.

Now let us understand:

- What is budget and record keeping?

É **Meaning of budget:** A budget is a carefully thought out plan of spending the money. It is an estimate of future income from various sources and expenditure of the family on different items for a given period of time. The period can be a week, a month or a year depending upon source and amount of income and expenditure of a family. So, family budget is a guide to spending and its aim is to avoid over expenditure.

A budget is prepared keeping in view the resources i.e. income available to a family, the size and composition of the family and needs of the family.

É **Steps in making family budget**

- (i) The first step in making budget is to see how much money you have to spend?
- (ii) Then list all the commodities and services needed by the family members throughout the proposed budget period. This will include food items, clothing, laundry material, medical expenses, telephone/electricity bills, fuel charges, wages to workers, children's school/ college fee etc. Rank these according to priority, fixed and flexible categories.
- (iii) Estimate the cost of goods and services needed over a period of time.
- (iv) Estimate the total income expected over the budget period.
- (v) Bring expected income and expenditure into a balance. This means total estimated expenditure should not be more than

expected income and some amount of income should be left for saving for meeting emergency needs.

- (vi) The last step is to check that;
  - (a) important needs of all the family members are fulfilled or not.
  - (b) is money saved for any emergency and fluctuation in prices.
  - (c) can all bills be paid on due date?

If answer to these three questions is yes then budget can actually be carried out. It requires tremendous will power to avoid temptation and stick to the spending plan. But the end result is increased satisfaction by proper use of money. Through budget making family learns to spend within its means.

#### É **Benefits of budgeting**

- (i) Sets guidelines for expenditure
- (ii) Helps in setting priorities
- (iii) Helps to control over expenditure
- (iv) Helps in saving money for unforeseen emergencies
- (v) Helps in making family happy

#### É **Meaning and importance of keeping household records**

Record keeping is the written statement of the exact expenditure made during the specified period .Keeping household records is an important part of money management. Record keeping helps to check whether budget plan is carried out properly or not.

Maintenance of record of income and expenditure is important as it has following advantages:-

- (i) It helps in gaining knowledge of money spent.
- (ii) It aids in checking wasteful expenditure.
- (iii) It provides information about the prices of various items and thus helps in wise buying. The records show in which month the family has extra--expenditure and why? Such information helps in future planning.
- (iv) It helps in balancing the budget by finding ways for saving whenever possible.
- (v) It is also valuable for comparing the present expenditure with that of past and helps in smooth functioning of family finances.

\* **Types of records:** Records related to money expenditure are kept in three ways:

- (A) Daily Records
- (B) Weekly Records/monthly records
- (C) Annual Records

**Guide lines in keeping accounts**

- (i) Start simply
- (ii) Workout the system to suit your personal and family needs.
- (iii) Stick to your account keeping until a habit is formed.
- (iv) Control accounts, do not let the accounts control you.

Varghese, Ogale and Srinivasan (1997).

Records for daily, monthly and yearly household expenditure can be entered in record sheets.

**(A) Daily expenditure record sheet**

Any notebook or register or dairy can be used for keeping daily records. Daily records give details of items purchased and amount spend as shown in sample record sheet given below. Items purchased can be put in different categories like food, clothing, shelter, medical, transport etc. Some home manager keep separate records for different categories of expenditure.

Date	Item purchased	Quantity kg/litre	Amount spent Rs.
1.1.09	Milk	2 kg	42/-
	Vegetables (Onion)	1 kg	15/-
	Potato	1 kg	10/-
02.02.09	Ghee	1 kg	180/-

**(B) Weekly and monthly expenditure record sheet**

In weekly or monthly records day wise expenditure on each household item for each week is recorded as shown in the following table.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Sun.	Total
1 <sup>st</sup> week								
2 <sup>nd</sup> week								
3 <sup>rd</sup> week								
4 <sup>th</sup> week								
5 <sup>th</sup> week								

By this type of record one can come to know about the expenditure during different weeks of the month and find out ways to balance income and expenditure.

**(C) Annual income, expenditure and saving record sheet:**

Using monthly records one can prepare annual income, expenditure and saving records. Through these records months of heavy expenditure and saving can be identified. Such records help in future planning and preparing financial records.

Month	Income	Expenditure	Saving
Jan			
Feb			
March			
April			

**ACTIVITY**

- i) Keep a record of your pocket money you spent in one week. Find out whether you have been wise or foolish in spending your money.
- ii) List the activities you can do for yourself to save the money.

➤ **Methods of supplementing family income**

The requirement of money is different in different stages of family life cycle. At some stage, a family may need additional income in order to fulfill financial requirements of its members. So it becomes important for the families to find out the ways to increase the income, rather than foregoing some need of the

family members. Following are the various methods by which a family can supplement its income;

- (A) Through the wise use of free goods and services provided by the community e.g. community health services, public parks etc. By using community health services we have to pay less as we get medical treatment in such centres at subsidized rates. Apart from this, we can also take a service of a doctor, a teacher or an artist who are our neighbours. We can avail their services without paying money because of friendly relationships.
- (B) **By recognizing and utilizing our own abilities/ skills:** For example, if one is good at stitching he/she can start stitching his own dresses and save money by reducing the expenditure on tailoring charges.
- (C) **By proper utilization of time and organization of household work:** By proper organization of household work one can save time for other activities i.e. home gardening, home baking, painting, handicrafts making etc. at least for meeting family requirements. Thus money saved through these activities serves as an income earned for the family.
- (D) **Using seasonal food products:** Off season fruits and vegetables are always costly and oftenly sprayed with insecticides so it is always better and cheaper to use seasonal foods.
- (E) **Wise purchase:** By purchasing household items from wholesale shop, by avoiding impulse purchase and purchasing according to family needs, one can save money.
- (F) **Wise plan for saving and investment:** By saving money and making proper investment of saved money, families can increase returns from its investments, thereby helping to boost its overall income.

So by skillful management of money, savings, investments and do it yourself method in running home, the family can supplement their income and satisfaction.

#### ACTIVITY

Make a list of ways in which you can supplement your family income.

➤ **Wise buying and saving practices**

**(A) Wise buying practices**

Buying today has become a difficult task because of multichoice market, false claims and misleading advertisements. For making right choice consumer should be clear in his mind and take following decisions before making purchase:

- (i) What to buy
- (ii) When to buy
- (iii) How to buy
- (iv) How much to buy
- (v) Where to buy
- (vi) How much to pay

**Following few guidelines may be helpful for buyers in taking above mentioned decisions:**

**(i) What to buy ?**

- (a) Determine the needs of your family for consumable as well as durable goods.
- (b) Make a list of items to be purchased based on priority as
  - M ó Most essential
  - E ó Essential
  - N ó Not needed immediatelyRevise the list asking yourself following questions
  - Do I need it?
  - Can I afford it?
  - Is it worth its price?
- (c) Once finalized, stick to that list.
- (d) Before actual purchase gather full information about the product from magazines, friends, relatives, consumer guides and shopkeepers etc.
- (e) On the basis of gathered information in mind, evaluate the product and decide the brand to be purchased.



- (f) Don't be lured by advertisements and clearance sale particularly if they are at temporary stall or hired place as they will not be traceable afterwards in case of any problem or complaint.
- (g) Check the goods for defects.
- (h) Check name and address of manufacturer.
- (i) Always prefer goods with quality certification marks.
- (j) Beware about imitations in brand name and packaging.
- (ii) When to buy ?**
  - (a) Shop during least crowded hours i.e. just when they open the shop or soon after lunch because shopkeeper is relatively free to attend you at that time.
  - (b) Always try to purchase seasonal fruits and vegetables as these are cheap and are rich in taste and flavor.
  - (c) Purchase electric items, woolens and shoes, etc. during off season to get benefit of off season discounts.
  - (d) Purchase fresh food items like milk, cheese, butter, meat, etc. early in the morning or in late evening when temperature is not high for spoiling these products.
  - (e) Don't hurry to purchase newly introduced products as their credibility is not established. As these may be costlier, less durable or non-sustainable. There may not be proper availability of their spares and services.
- (iii) How to buy ?**
  - (a) Buy carefully, conservatively and preferably in cash
  - (b) Avoid impulse buying during celebrations
  - (c) Ask for and avail cash discount
  - (d) Don't get misled by 0% interest schemes. You lose in terms of discount on cash payment and file and processing charges.



**(iv) How much to buy ?**

**Buy according to:**

- (a) Need and requirement
- (b) Financial resources at hand
- (c) Storage space available at home
- (d) Shelf life of perishable products

**(v) Where to buy ?**

- (a) Purchase daily use items through consumer cooperatives.
- (b) If large quantity is required then go to wholesale shops.
- (c) Purchase textiles, electronic items from company showroom or authorized dealers.
- (d) Purchase fresh fruits and vegetables from Apni Mandi.
- (e) Always purchase from shopkeeper who is honest and takes care of customers needs.

**(vi) How much to pay ?**

- (a) Make budget i.e. estimation of income and expenditure and spend according to your financial resources.
- (b) Always remember that highest price is not always guarantee of best quality.
- (c) Look for Max. Retail Price (MRP) inclusive of all taxes. Bargain and ask for a discount as MRP is not a government fixed price. Never pay more than MRP.
- (d) Treat concealed or upwardly revised MRP label with suspicion. Check price from other shops or latest price list of company.
- (e) Obtain cash memo; check cash memo; check items; count the items; check the total and balance received.
- (f) Remember that cash memo is the only document required for redressal of any grievance.

By keeping the above guidelines in mind, consumer can be wise and smart purchaser and cannot be deceived by sellers.

**(B) Wise saving practices**

Sometimes we think that it is very difficult to save for a person having limited income. But have you ever thought of some practices which help in saving such as;

- (i) by cutting down unnecessary expenses
- (ii) by good care and maintenance of our belongings so that these do not need to be replaced frequently.
- (iii) by postponement of less important expenditure and purchasing less costly items instead of branded costly items. So we can save on daily, weekly, monthly or yearly basis. Following are some useful tips for saving.
  - (a) Invest or deposit all your savings instead of keeping it with you. It will give you some extra income as interest. For this you can deposit/ invest your money in post office/bank savings accounts, FDs, NSC, Bonds, LIC, PPF, Gold/jewellery. But keep in mind
    - capacity of investment
    - safety regarding investment plan
    - liquidity it means, is it possible to get back the money if needed
    - benefits and convenience
  - (b) Renovate and reuse or sell the old furniture, clothes, vehicles, books, magazines and other junk. This saves expenditure on new items or earns some bucks by selling wasteful in home.
  - (c) Buy things which are easy to maintain and economical to keep i.e. a small car, compact home etc.

Share things and vehicles or equipment with friends, relatives and neighbours to save money

- Grow kitchen garden for vegetables/herbs.
- Prepare own food and drinks instead of eating out costly food or purchasing costly drinks or juices from the market.
- Avoid lavishness in purchase or for show off.
- Make maximum use of community facilities and public transport.
- Rent out spare room or items like fan, cooler, ACs etc.
- Avoid wastage of food, water, electricity and money.

So, Saving can be done by wise use of resources, wise purchase or by thoughtful expenditure and investment.

### ACTIVITY

List down activities you can do yourself to save money.  
Estimate how much money you can save in a month by doing these activities.

## ➤ Saving and Investment

Most people feel - no matter what their income - that they need more money to meet their expenses. But, experience has shown that in our inflationary economy, more money is not always the answer to obtain financial stability and security. Actually, it is important to plan properly and thus spend our money. Whatever may be your situation, provide for a savings fund, adequate to meet emergencies and achieve special family goals. So knowledge about saving and investment is essential.



### What is saving?

Saving can be defined as the pooling of money either gradually or in lump sum in order to meet the future needs. Savings are that part of one's income which is not spent away today but it is accumulated for the future use. It helps an individual to cope with emergency needs.  $\text{Savings} = \text{Income} - \text{Expenditure}$ . Savings have to be accumulated through careful planning. All families rich as well as poor must save money. They must have clarity about purpose of saving and their saving plan should be realistic. It should be done keeping in mind the needs and requirements of family.

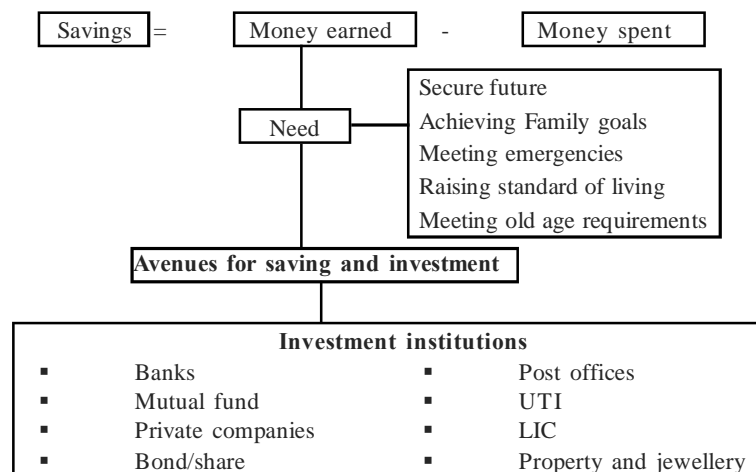


Fig. 4.1 : Savings and Investments

### **What is investment?**

Investment is usually defined as a process of placing family funds in more or less permanent form with the expectation of assuring the security of principal and of receiving a regular predictable return from it. In simple words, Investment is use of money for the purpose of making more money.



### **Need of saving/investment:**

You must have heard of a statement save for a rainy day. It means one should keep aside some part of his/her income for one's own security and meeting emergency expenditures. The need for saving and investment can be well understood by reading following few advantages.

- (i) It makes the family financially more confident and enables one to face the future more bravely without the feeling of insecurity.
- (ii) It helps to bring out a balance between income and expenditure.
- (iii) It helps to even out the inequalities caused at different stages of family life cycle.
- (iv) It helps to acquire more money
- (v) It helps to even out demand of unforeseen contingencies.
- (vi) It helps to improve one's standard of living. Saving enables one to buy goods/materials that would otherwise be beyond one's reach. These goods of savings enhance the social status of individual/family.
- (vii) It gives prestige value to the family in society.
- (viii) It helps to meet children needs such as to meet expenses of their higher studies and marriage.

(ix) It helps in meeting old age requirements.



*Marriage*



*Higher education*



*Old age*



*Emergencies*



*Maintaining standard of living*

But remember that saving has meaning only when its purpose is well planned and understood by all the family members. Deprivation of present needs on account of an excessive fear of unknown future is not good. The saving programme should fit the family's need and pocket and be accomplished without undue hardships.

### **Principles of sound investment**

Before actually investing the saved money, one should have the clear idea as to where to keep the earned money so that it is safe and brings good returns. Hoarding the money at home is not desirable. One should select the best and most appropriate institution for saving. Some of the criteria for selecting a good investment option are:

#### **(A) Safety and security of capital**

The investor should see the institution chosen for savings should be safe and there should be no risk to the principle amount placed as investment. Safety can be determined by knowing the reputation, consistency, dependability and type of institution like an individual, a private or a government agency. For the money to be secure, one should follow diversification of investment i.e. keeping money in different institutions so that entire savings do not get blocked in a single source alone.

**(B) Reasonable rate of return and investment yield**

The savings schemes should give a good rate of interest without any risk factor involved as the main purpose of investment is to get a return. Therefore, before investing the money one should compare the rate of interest earned in different organizations under their various saving schemes. Besides, one should compare them with their safety and liquidity before taking final investment options.

**(C) Liquidity and marketability**

Liquidity means the ability of converting the security into cash without sacrificing its original value. The higher the liquidity the more desirable is the scheme. For example, the money kept in simple saving account in the bank is more liquid than money kept in fixed deposit account, where one can not withdraw the money before the maturity of the account without losing some amount.

**(D) Tax benefits**

There are specific avenues like insurance policies, National Saving Certificates, National Saving schemes, Public provident Fund etc. which give benefits of tax rebate. Thus, a sound investment will not only yield good returns, but also help to save taxes on income.

**(E) Capacity to invest**

Saving performances should fit well the needs of the family and saving should be such that it can be accomplished without undue hardships. One should not save and invest beyond one's capacity to do so. It is not wise to sacrifice present basic needs in the hope of having a secure bright future. Such sacrifices will result in dissatisfaction among family members, and by the time the returns are received, the family may not be in a position to enjoy them.

**(F) Easy Accessibility and convenience**

Along with liquidity, easy accessibility and convenience should be kept in mind. One should invest in an institution that is easy accessible and where it is easy to handle the technical details. A nearby bank or post office is a better option for savings.

### THINGS TO REMEMBER

- É Money is the most important material resource for a family.
- É Money management involves planning and controlling the use of family income.
- É A budget is a carefully thought out plan of spending money.
- É Family income can be controlled through record keeping.
- É Record can be kept in three ways; daily records, weekly/monthly records, yearly records.
- É Family income can be supplemented by; recognizing and utilizing our own abilities/skills, proper utilization of time, saving and investment.
- É Through saving and investment one can meet emergency and future requirements.
- É Keeping aside some money from present income for meeting future requirements is known as saving. Whereas, investment is the use of saved money for the purpose of making more money.
- É Bank, post office, private companies, insurance companies, UTI are the saving and investment institutions, depositing money, purchasing shares, bond, jewellery, real estate are the methods of saving and investment.
- É The principles of sound investment are; safety of capital, reasonable rate of return and investment yield, liquidity and marketability, tax benefits, capacity to invest and easy Accessibility and convenience



## QUESTION BANK

### Objective types questions

1. \_\_\_\_\_ is the most important material resource of a family.
2. A carefully throughout plan of spending the money is called \_\_\_\_\_.
3. \_\_\_\_\_ and \_\_\_\_\_ are investment institutions.
4. The planned and controlled use of family income is called \_\_\_\_\_.
5. Family income can be supplemented through;
  - (a) Budget making
  - (b) Saving
  - (c) Record keeping
  - (d) Through skillfull management of money and saving
6. What do you mean by saving?
  - (a) Purchasing less costly items
  - (b) Proper care and maintenance of our belongings
  - (c) Cutting down unnecessary expenses
  - (d) All of the above
7. The family should maintain the record of household expenditure because;
  - (a) It helps in checking wasteful expenditure
  - (b) It helps to compare past and present prices of products
  - (c) It ensures systematic spending of money
  - (d) All of the above
8. Money Management is controlled use of family income. true/false
9. The first step in making budget is to see the size, composition and needs of the family. true/false
10. Budgeting helps in saving money for unforeseen emergency. true/false
11. Through the wise use of free goods and services provided by the community, one can supplement one's family income. trhe/false
12. Define the term money management.
13. What do you mean by budget?

### Short answer type questions

1. What are the benefits of budgeting?
2. Explain in brief importance of keeping household records?

### Long answer type questions

1. Explain in detail different steps in money management.
2. What are the different methods of supplementing family income?

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## INTERIOR DECORATION AND SPACE MANAGEMENT

Our home is our haven, where we go and unwind after a long day. An ideal house must be appealing to the eyes and attractive to its inmates and also to the outside visitors to the home. A simple house can be made to look attractive by decorating its interior tastefully. This chapter will throw light on

- **Meaning of interior decoration**
- **Objectives of interior decoration**
- **Principles of interior decoration**
- **Space Management through use of light, colour, accessories and furniture**
- **Meaning of interior decoration**

Interior decoration is an art of adjusting the space and equipment to suit the fundamental and cultural needs of the family members and thus creating a pleasant atmosphere. Almost every woman has some natural ability to recognize beauty and suitability in house and their furnishings. There are many benefits of interior design. Homes that are tastefully decorated tend to be much cleaner. Those people, who spend the time to decorate their space, usually take pride in their home. Having a beautiful home can help with depression because if you like your living space you are more likely to be a happy person.

Advancement in science and technology and the subsequent changes in the economy and life-style due to industrialization, modernization and urbanization, have increased the desire to live in a home that is aesthetically designed. Whether the home is big or small, traditional or contemporary, in the city or in the rural set-up, acquiring a right style for living is vital. Interior design or decoration is not merely choosing color schemes, selecting different artifacts and furnishing with beautiful, expensive materials. Rather, it is about designing and decorating space so that it looks practical and attractive. Above all, it is about creating a pleasing and satisfying living environment, to match the needs of the user.

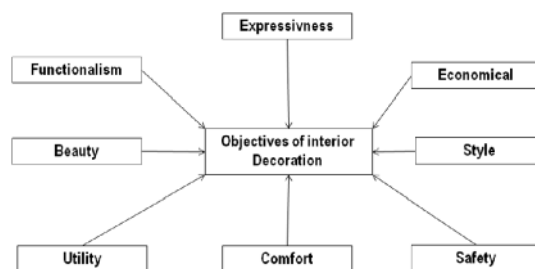


Fig. 5.1 : Objectives of Interior Decoration

### ➤ **Objectives of interior decoration**

Interior Decoration is the art of arranging all the articles of decoration and the space in such a way that apart of enhancing the beauty of house, they can be utilized in best way to satisfy the needs of the family members and create an atmosphere for comfortable living.

The objectives of interior decoration is not just adding beauty but arranging properly everything and every object according to its utility, functionality, personal liking and economical point of view.

### ➤ **Principles of art in relation to interior decoration**

The presences of Art Elements make all decorative pieces attractive. All these elements of art are to be arranged using definite principles to make a piece of art look impressive and meaningful so that they look harmonious and do not make each other look less attractive. These principles are known as principles of design.

**Following are the five basic principles of Art or Design:**

- (A) Harmony
- (B) Balance
- (C) Rhythm
- (D) Proportion
- (E) Emphasis

#### **(A) Harmony**

Harmony means that all the articles of decoration used in the room such as furniture, wall pictures, curtains etc. should be harmonious to each other. The size, shape, texture color and the expression or meaning conveyed by these objects should be so matched that all the articles placed in the rooms seems to be unified whole. Harmony means unity or a single idea of impression. When all the objects in a group seem to have familiar resemblance with each other, that group illustrates the principle of harmonious selection. Harmony should be created in all the elements such as:

- (i) Harmony in lines
- (ii) Harmony in size and shape
- (iii) Harmony in texture
- (iv) Harmony in expression
- (v) Harmony in color
- (vi) Harmony in Pattern.

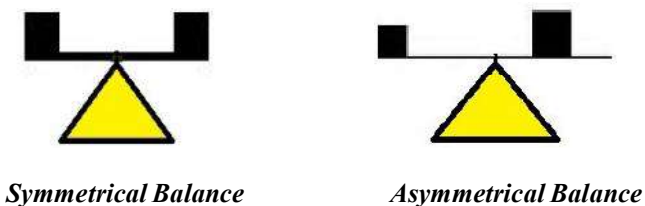
## **(B) Balance**

Balance is essential in the object to bring stability, the same principle is applied in Interior Decoration also. When one article is placed in the room is considered as centre and the other articles are arranged on the both sides in such a way that both sides looks equally attractive then it is called **IN BALANCE**. Such state seems comfortable, stable and permanent.

“**Balance** means comfort or repose. This goal can be achieved by arranging all shapes and colors around the axis in such a way that there is equal gravitation between allö

Balance is of two types:

- (i) Formal or symmetrical balance: Formal balance or symmetrical balance results, when objects of equal and weight (identical) are placed at equal distance from the central point of interest.
- (ii) Informal or asymmetrical balance: Informal balance or asymmetrical balance results when objects of unequal weights are arranged at different distance away from the central point in such a way, that they appear to be in equilibrium. Larger objects or heavy objects are placed closer to the central point and smaller or light weight objects are placed away from the centre.



*Fig. 5.2*

## **(C) Rhythm**

Rhythm means movement. Rhythm is the principle of nature, which we can see all around us e.g. movement of growth of plants produces rhythm, the mountain peaks seems to be rhythmic to each other. Here it means the movement due to which an eye travels from one part of design to another. An empty space have no rhythm but an object of any shape is placed therein, the eyes begin to move along with the lines produced by that object, connects other object adjoining it and it travels back to the starting point. As a result, all the objects placed there are united into a group through the vision i.e. we perceive all the objects together.



*The repeating wood slats on the wall of this pizza shop creates a playful rhythm and draws your eye through the space.*

#### **Rhythm is of two types:**

- (i) Regular rhythm
- (ii) Variable rhythm

#### **(D) Proportion**

The articles used for the decoration of a place should be in correct proportion to each other and to the size and shape of place where they are being used. Proportion means relationship of the objects with each other. Therefore this principle is also known as law of relationships. An object may look attractive in color and shape when observed alone, but when it is placed along with those objects which are not in correct proportion to it likewise they are very large or small then effectiveness of that beautiful object will be reduced greatly. Hence beauty of an object greatly depends on its proportion to the other object placed around it.

In Interior Decoration, the correct proportion can be achieved in the following elements:

- (i) Proportion In lines
- (ii) Proportion in Distance and Space
- (iii) Proportion in Scale



*Vertical line has been applied to the ceiling and wall to draw the eye down and add a sense of proportion to the space. Otherwise room will look unbalanced due to the low horizontal nature of the seating.*

### **(E) Emphasis**

Man by nature, is attracted towards beautiful things and want to present his favorite object in his special way. Presentation of an object of beauty in a more impressive form is called the Emphasis. An object can only look attractive only when other object surrounding it are shown to be less significant. Therefore, placing an attractive object at a special place in a room and then arranging less important things around it, is the way to put emphasis. Following points should be kept in mind while using the principle of emphasis more effectively:

- (i) What to emphasize
- (ii) How to emphasize includes grouping, decoration, use of colors, lines and forms.
- (iii) Where to emphasize
- (iv) How much to emphasize



*Here the emphasis is on fireplace which is in the centre space and first thing to catch your eye.*

### **➤ Space management through use of light, color accessories and furniture**

With color, furniture arrangement, and interesting lighting, one can better manage the space in homes. Using dark colors, soft upholstery, and dramatic lighting one can turn any tiny nook in a room into an intimate and wonderful corner. Effective organization of space adds to the efficiency, comfort and health of the inmates. A homemaker has to achieve a balance between various requirements of the family members. There is a need for privacy besides spaces being allocated for work and play. These days, it is difficult to find a spacious accommodation. It is therefore essential to make best use of available space.

#### **(A) Use of proper light**

The lighting in a home changes the mood of a room. Both natural and man-made lighting help with the illusion of space. Natural lighting is

preferred above man-made lighting because it shows off colors better and adds to the visual space of a room by bouncing off reflective surfaces.

**(B) Use of Color**

Dark, warm colors make a space feel cozy and intimate whereas light, cool colors make a space feel open and airy. For optimum effect, select soft tones of blues and greens. Pieces of furniture tend to blend with the space if they're colored to match the wall color.

Following are some general rules that one should keep in mind while choosing colours for the interiors:

- (i) Warm colors make a room appear smaller and more intimate.
- (ii) Cool colors make a room seem larger and more spacious.
- (iii) Intense colors make a room seem smaller, while low intensity colors enlarge it. Dark colors make a room seem smaller; light colors make it seem larger. Highly contrasting colors make a room seem smaller.

**(C) Use of Accessories**

- (i) Too many accessories make small spaces look cluttered, and when they're too large, they look mismatched. The best solution is to audition accessories and place them in groups of two or three items throughout your space. Leave plenty of open, uncluttered area around them.
- (ii) Add sparkle and reflection with mirrors. While a framed mirror is a traditional look over a mantle or sideboard, you can consider a more innovative approach like setting an oversize mirror on the floor leaning against a wall (be sure to attach it to the wall securely however, and just pull the bottom of the mirror away from the wall a few inches). A mirror table topper is another great way to add some shine to a plain or skirted table.
- (iii) Look for filmy, gauzy fabrics for window treatments and tablecloths. These lighter fabrics let the light shine through while adding softness and personality to a space. Reduce visual clutter by using fewer, larger pieces of furniture and accessories. Simple lines and shapes can also help to bring a sense of calm and open space into your room.
- (iv) Emphasize a sense of space by covering sofas and chairs with plain or textured upholstery rather than vibrant prints. Neutral tones in lighter colors will usually make a room feel larger.

- (v) Introduce a few plants. You can buy pots that make watering easier, and even add lights that will help plants grow in any room. Plants are alive, and that can make a big difference in a small, impersonal space. They add texture and dimension to your environment, contribute color and clean the air.

#### (D) Use of Furniture

- (i) Choose furniture according to its functionality. If you have many books then you need shelves to keep them on your walls and instead of the floor. Walls are one of the rare areas of our house that don't get much cluttered with stuff. Use their space to store books, clothes and even your footwear. Shoe organizers/racks are also popular as they keep shoes properly stored and at one place.
- (ii) Space-conscious furniture is one of the most common **effective space management** method, built-in wardrobes and beds, folding tables and sofas are simply lifesavers when it comes to saving space. Some of these have storage spaces to keep things right inside your table. So it is better to consider the folding bed with built-in shelves or wardrobe instead of king-size bed if you live in a small apartment or a home.

#### ACTIVITY

- É Paste a Picture showing formal balance furniture arrangement in your scrap book.
- É Paste a Picture showing informal balance furniture arrangement in your scrap book.
- É Paste a Picture of space saving furniture items available in nearby furniture shops in your scrap book.
- É Paste a Picture showing use of colours and accessories that help in saving space in a room.



### THINGS TO REMEMBER

- É The purpose of Interior decoration is to make our home livable by making it attractive, orderly and neat in appearance by following different principles of art.
- É There are five basic principles of Interior Decoration viz; Harmony, Balance, Rhythm Proportion, Emphasis
- É Space management can be done with proper use of light, colour, accessories and furniture in a house.
- É Use of cool colours, minimal accessories and space saving furniture help in effective space management.

### QUESTION BANK

#### Objective type questions

1. Harmony means \_\_\_\_\_ or \_\_\_\_\_.
2. Objects of equal weight are placed at equal distance from the central point of interest. This is called \_\_\_\_\_ or symmetrical balance.
3. Movement due to which an eye travels from one part of design to another is called \_\_\_\_\_.
4. Proper \_\_\_\_\_ in a room helps with the illusion of the space.
5. The relationship of the objects with each other is called.
6. Cool colours make a space feel:  
(a) Open and airy (b) Cozy and intimate  
(c) Both a and b (d) Dark and dull
7. Objects of unequal weights arranged at distance away from the central point:  
(a) Symmetrical balance (b) Asymmetrical balance  
(c) Rhythm (d) Proportion

8. Objects in groups having similar resemblance with each other:  
(a) Balance (b) Emphasis  
(c) Harmony (d) Rhythm
9. Cool colours make the room look smaller. true/false
10. Balance can be either regular or variable. true/false
11. Lighting can help changing the mood of a room. true/false
12. Define interior decoration?
13. What do you mean by balance in interior decoration?
14. Define the term rhythm.

**Short answer type questions**

1. -A simple house can be made to look attractive by decorating its interior tastefully. Comment.
2. Enlist the objectives for decorating the house.
3. Does use of proper light help in illusion of space?
4. Enlist five basic principles of art or design.

**Long answer type questions**

1. What are the basic principles that help in decoration?
2. How can you manage the space in home with the use of color and accessories?
3. Use of space saving furniture and proper light helps in space management. Explain in brief.

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## CLEANING AND MAINTENANCE OF HOUSE & HOUSEHOLD ITEMS

A well cleaned house adds to safety, comfort and satisfaction of whole family. So all family members should share the responsibility of home cleaning, it means everyone should take care of his/her own things. After using, place everything in proper space assigned to these and should contribute in cleaning and maintenance of all household items. The secret of easy house cleaning lies in the use of cleansing material. Without these the household cleaning operations become irritating. Many of us are ignorant of science of cleaning and think that only broom, mop and duster are required for cleaning of all household items but cleaning cannot be performed satisfactorily without proper tools and materials. For performing cleaning activity with maximum efficiency and minimum exertion, it is essential to have sufficient cleaning tools and cleansing materials. After reading this chapter you will learn about

- **Meaning/reasons for cleaning**
- **Principles of cleaning/cleaning schedule**
- **Cleaning tools/cleansing materials required for cleaning**
- **Eco-friendly substitutes for cleaning different household articles and surfaces**
- **Cleaning of different metals/materials used in households**
- **Meaning/ reasons for cleaning**

Cleaning is defined as removal of all dust, dirt, and foreign matters from various surfaces like floor, walls and roofs etc. In this definition three words i.e. dust, dirt and foreign matters are used. Let us understand the meaning of these three.

**Dust:** It is defined as the loose particles deposited from the air. This dust is complex in character and its constituents are both inorganic (powdered earth, sand and dry soil) and organic (scraps of skin, hair and pollens) matter. It floats about in the air and settles readily on the surface.

**Dirt:** It is dust held firmly by moisture, grease or rough surfaces. It cannot be moved by the currents of air and is not always removable by the methods used for removal of dust alone.

**Foreign matter:** This includes rust and tarnishes, which are chemical compounds formed by the reaction of air or food with metals; for example, you might have seen that an iron utensil rusts when left exposed to air and moisture.

### **Why cleaning is important?**

Cleaning is very important because deposits of dust, dirt and microbes can cause infections, allergies and various other health problems. Cleaning is important due to following basic reasons;

- É Dust must be removed because it does not look nice. Dirty and dusty things are also unpleasant to handle and use.
- É Dust and dirt are very dangerous to health. Dust is the swiftest carrier of disease germs. Dust laden air is injurious to throat and lungs.
- É Dust and dirt have destructive effect on articles. For example if dust is allowed to collect on a carpet it wears out.

### **➤ Principles of cleaning/cleaning schedule**

- (A) Scrubbing (frictional cleaning) is the best way to physically remove dirt and microorganisms.
- (B) Cleaning is required prior to disinfection process because dirt and other materials can decrease the effectiveness of many disinfectants.
- (C) Cleaning products should be selected on the basis of their use, efficacy, safety and cost.
- (D) Cleaning should always progress from the least soiled areas to the most soiled areas and from high to low areas, so that the dirt that fall on the floor will be cleaned up last.
- (E) Dry dusting should be avoided to prevent dust and microorganisms from getting into the air and landing on clean surfaces.
- (F) Routine cleaning is necessary to maintain the standard of cleanliness.
- (G) Remove dirt with neutral detergent and warm water solution.
- (H) Dusters/mops should be laundered or cleaned in detergent and warm water at least once a week.
- (I) Buckets should be emptied after daily use, washed with detergent and warm water, and stored dry-turn upside down.

### **Cleaning schedule:**

There are three types of cleaning schedules in households viz. daily cleaning, weekly/monthly cleaning and spring cleaning.

**(A) Daily Cleaning**

The daily routine of cleaning should start with airing of the rooms by opening the windows. The work in each room may proceed along the following lines:

- (i) Make beds and put back everything in its proper place.
- (ii) Cover the Upholstered pieces with a protective material.
- (iii) Shake the rugs and door mats outside the doors.
- (iv) Sweep the room.
- (v) Dust everything.
- (vi) Mop the floor.
- (vii) Rearrange everything that has been disturbed while sweeping dusting and moping.
- (viii) Arrange flowers.

Daily cleaning of the kitchen is best done at night after the family has finished the night meal. The kitchen counter is cleaned with a soapy sponge, every item used, is placed in its proper place, the cooking gas burner is cleaned and wiped, the sink is scrubbed and the floor is swept and mopped.

**(B) Weekly/Monthly Cleaning**

Weekly cleaning includes removal of cob-webs from the room ceiling and dusting of high places that are not touched daily like corners, doors and cupboard tops, and pictures. Thorough dusting is done everywhere and the room is finally swept mopped and rearranged.

**(C) Festive Cleaning**

This cleaning is done annually and the whole house is turned out room by room and cleaned from ceiling to floor. In India, thorough cleaning including white washing is carried out before the winter sets in; the usual time is before Dusshera and Diwali. The process of this cleaning consists of the following activities:

- (i) The cupboards and drawers are cleaned by turning them out and sorting their contents.
- (ii) Woodwork is scrubbed, dried, polished and painted and relined with fresh paper before placing back the articles.
- (iii) Curtains are washed and renovated.

- (iv) Bottles, jars and tins containing household stores and overhauled and relabelled.
- (v) Preparation of winter garments, blankets etc are done and the summer articles packed away with moth preventive balls or camphor.
- (vi) The whole house is whitewashed, woodwork painted, window panes cleaned, the floor scrubbed and washed.
- (vii) Lastly all the items are kept at proper places after cleaning.

### Advance preparations for festive cleaning

The following jobs should be done before starting main work of festive cleaning.

- É Examine all furniture/fixtures for any repairs and get the repairs done.
- É Turn out materials of all cupboards/drawers. Sort the material and dispose of all unusable items. Reline and rearrange the drawer after thorough cleaning.
- É Clean all curtains, bedding, clothing and store these after taking out seasonal beddings/ clothing etc.
- É Check all cleaning equipment is in good order and you have plenty of cleaning, polishing and disinfecting material at hand.

### ACTIVITY

Prepare a weekly cleaning schedule for your kitchen.

## ➤ Cleaning tools/cleansing materials required for cleaning

### (A) Cleaning Tools

Numerous cleaning implements are available for use in cleaning of a house. Even though there are several products available, we only need to select the appropriate ones. Examples of some cleaning implements are shown below.

- (i) **Brushes:** There are various types of brushes like Scrubbing Brushes, Sweeping Brushes, W.C. Brushes, Clothes Brush, The Long Bristle or Bottle Brush, Feather Brushes, Shoe Brushes, Carpet Brushes.

- (ii) **Sponges:** are natural or synthetic, made of rubber, cellulose or vinyl. They are mainly used for washing walls, woodwork, upholstery and washing the utensils.
- (iii) **Brooms:** In India, these are called Jharoo. These have a brush and a long handle. The length of the handle is such that the person is not required to bend much.
- (iv) **Dusters:** There are different types of dusters like floor mops, flannelette dusters used for dusting as well as polishing furniture.
- (v) **Steel Wool:** It is fine filaments of steel available in the form a role used for cleaning and polishing aluminium and plated brass.
- (vi) **Wire Gauge Scrubber:** It is a round shaped wire used for cleaning iron Karahi and Tawa.
- (vii) **Buckets:** These are mainly used for carrying water for cleaning.
- (viii) **Dust Pan:** It is used for cleaning dust and dirt.
- (ix) **Vacuum Cleaner:** It is a motorized cleaner used for sucking dust and cleaning upholstered furniture, mattresses, book shelves, cupboards, curtains etc.

#### (B) **Cleaning Materials**

In our homes, there are a number of different surfaces to be cleaned for example metals, wood, stone, tiles, china glass and plastic. Hence we need different cleaning agents to clean these surfaces. Some of the cleaning agents are as follow:

- (i) **Soaps and Detergents:** If the water is soft, we use soap. For hard water, a detergent is better.
- (ii) **Cleaning and Scouring Powders:** These are used for cleaning pots, pans, marble floors, unfinished wooden surfaces, cemented walls and steps. Vim is a type of a Scouring powder.
- (iii) **Ash:** It is used for scouring burned kitchen utensils and for polishing steel.
- (iv) **Mud:** It is a cleaning agent for brass and iron.
- (v) **Saw Dust:** It acts as an abrasive and grease absorber.
- (vi) **Salt:** It is used for cleaning kitchen, shelves.
- (vii) **Vinegar:** It is used for cleaning window panes, rinsing glasses and making wood polish.

- (viii) **Lemon:** Used up lemon peel is good for removing tarnishes from brass and ink marks from soft wood.
- (ix) **Methylated Spirit:** It is used for cleaning glass and polishing wood work and silver.
- (x) **Linseed Oil:** It is used for preparing furniture and leather polishes.
- (xi) **Oxalic Acid:** It is used for removing stains from porcelain. Diluted solution is used for removing rust stain.

### ➤ **Eco-Friendly substitutes for cleaning different household articles and surfaces**

Now-a-days many wonder cleaners such as toilet cleaners, bleaches, insect repellents and room fresheners are available in the market but these contain harmful chemicals which cause damage to the surface and to the skin of user. Also they can cause domestic accidents through poisoning and their harmful effects vary from minor mood changes to headache, serious respiratory and other problems in the body. Besides, when they go down the drain, they cause damage to life in rivers. Fruits, vegetables and cereal crops irrigated with such polluted water may cause serious health hazards. So, there is a need to restrict the use of these harmful agents. There are numerous ways to clean house without causing harm to the environment. Following are some formulations for eco-friendly cleaners suitable for cleaning different materials in the home.

#### **(A) Multi purpose cleaner**

Mitha soda	-	1 table spoon (full)
Soap flakes or surf	-	1/4 <sup>th</sup> cup
Warm water	-	2 litres

#### **Method**

Mix soap flakes and baking soda in warm water stir well, sieve and store in clean bottle, dampen a soft cloth with the mixture and rub on the surface to be cleaned. After cleaning, rinse the surface with clear water.

#### **(B) Tile cleaner**

Baking soda	-	¼ cup
Ammonia	-	1 cup
White vinegar	-	¾ cup
Warm water	-	5 litres

#### **Method**

Mix all the above in a bucket and stir until the baking soda dissolves, sieve and



store in clean bottle. Scrub solution on tile using a brush, nylon pad or sponge. Rinse with clean water.

**(C) Appliance cleaner**

Borax	-	1 table spoon
White vinegar	-	½ cup
Warm water	-	2 cups

**Method**

Put all the ingredients in a spray bottle. Shake to mix and dissolve borax. Spray on appliances as required and wipe off with a soft cloth or sponge.

**(D) Copper and brass cleaner**

Vinegar	-	1 cup
Salt	-	3 table spoons

**Method**

Put vinegar in a clean bottle, add salt and stir well before use. Apply the solution on articles to be cleaned, let set for a while, then rub with a soft cloth.

**(E) Glass cleaner**

Vinegar	-	½ cup
Water	-	2 cups

**Method**

Mix vinegar and water. Use the solution to clean windows, mirrors or any glass surface.

**Note :** Water marks on glass can also be removed by using sodium bicarbonate.

**(F) Leather cleaner polish**

Linseed oil	-	1 cup
Vinegar	-	½ cup

**Method**

Mix the two chemicals and shake them. Dampen a cloth with the mixture and rub into leather until clean.

**(G) Furniture polish**

Linseed oil	-	3 table spoons
Turpentine oil	-	1.5 table spoons
Vinegar	-	1.5 table spoons
Methylated spirit	-	1.5 table spoons

**Method**

Put all the above ingredients in a bottle shake well. Apply using a soft cloth, rub dry with a soft, clean cloth.

**(H) Doors/windows cleaner**

Add 1 cup eucalyptus oil in one litre of water, put this in spray bottle and shake it well before using it to shine doors, windows and table tops.

**(I) Toilet bowl cleaner**

Borax	-	2 table spoons
Vinegar	-	1 cup
Detergent/Vim	-	2 table spoons
Salt	-	1 table spoon
Water	-	½ litre

**Method**

Mix all the ingredients in water, shake well before use. Put ½ cup of this solution in toilet, leave for 1 hour and then scrub thoroughly.

To open clogged drains, sprinkle quarter cup baking soda, followed by ½ cup of vinegar. After fizzing stops that put boiling water in the drain.

**(J) Room freshener**

Dissolve 1 tea spoon baking soda in two cups of hot water and add one table spoon of lemon juice in it. Pour this solution into a spray bottle and use it as room freshener.

All the above mentioned cleaners are safe and easy to use. So, use these humble, cheap and eco-friendly cleaners.

➤ **Cleaning of different metals/materials used in households**

Every home requires a variety of different materials/metals to meet its various requirements. If you look around your home you can probably name at least three or four types of metals that are used for routine household activities. With the passage of time most of these metals gradually get darkened and become less shiny with the time, however this shiny look can be maintained with a little care. There are different ways to clean these metals to make them revert their original shine. Cleaning of metals require special attention, as metals can be soft e.g. silver, copper, tin etc. or hard which do not scratch easily such as iron, steel and brass.

The cleaning of different metals and non metals can be done by following simple methods as given under:

**(A) Aluminium:**

Cream of tartar	-	1 table spoons
Lemon juice	-	3 table spoons

## Method

To remove interior discoloration, fill the pan with water, add 1 tablespoon cream of tartar or 1 tablespoon lemon juice per liter of water, and simmer until the discoloration is gone. Complete the process by scouring the pan with a steel-wool soap pad.

**(B) Enamelware:** Rub with moistened soda bicarbonate, or hot detergent solution or use an all purpose cleaner. Burn marks can be removed by rubbing the spots with vinegar and moistened salt. If burned particles are still deposited on the utensil, soak it overnight in soda solution. Always let enamel cookware cool before washing. Rapid changes in temperature can crack the enamel coating. Use a synthetic scouring pad; never use abrasive cleansers or steel wool to scrub stubborn soil.

**(C) Non-stick ware:**

- |               |                  |
|---------------|------------------|
| Baking Soda   | - 2 table spoons |
| Liquid bleach | - ½ cup          |

## Method

To remove stains from nonstick cookware, mix 2 tablespoons baking soda with 1 cup water and 1/2 cup liquid bleach. Boil solution in pan for several minutes until the stains disappear, then wash as usual.

**(D) Silver:** Boil small silver items in a solution of washing or baking soda and salt (in equal amounts) till water becomes dirty and articles are clean. It may take 10-15 minutes. Large pieces of silverware can be cleaned by rubbing fine ash and then polish with salt.

**(E) Gold:** To clean, wash it first in shampoo water, dry it, and then rub a muslin cloth dipped in turmeric powder. It can also be cleaned either boiling in mild soapy solution or soaking and boiling in mild turmeric solution. After boiling clean and wipe it with soft and clean cloth.

**(F) Iron:** Wash cast-iron cookware in hot sudsy water. These must be dried immediately and rubbed with oil to prevent rusting. Alternately apply a solution of lemon juice and salt. Brown marks from iron vessels can be rubbed off with damp cloth and baking soda. Another method is to apply coconut oil, leave for one day and then rub it off with the help of chalk; or dip it in vinegar and later in hot water for an hour.

**(G) Stainless steel:** Use very fine steel wool with detergent to remove water stains. Residue from coffee decoction is excellent cleaner for stainless steel vessels. Oily stains can easily be removed with the help of used coffee powder or used tea leaves. To polish stainless steel, sprinkle baking soda on the wet surface of a pan, and scrub the metal with a synthetic scouring pad.

**(H) Tin:** Wipe with a solution of hot water and soda bicarbonate. To bring shine rub it with slice of raw onion or with a paper dipped in vinegar or make a paste out of vinegar and baking soda, flour, and a little bit of salt. Even mixing one part of lemon juice to three parts of salt is also a good for cleaning.

**(I) Bronze:** Put few drops of cooking oil on a soft rag and rub over bronze articles to clean them. Later remove oil with a soft duster. Spots due to corrosion can be removed with the rind of lemon or sour lime dipped in salt.

**(J) Chromium finish :** To remove stains from chromium finished surface, rub it with cut onion and polish with dry cloth. Since chrome plating scratches easily, use soft cloth. Vinegar is a good cleaner. To remove rust, take a piece of aluminum foil, crumple it up, dip it in vinegar (or any carbonated drink), and scrub. Be careful not to apply too much pressure, Scrub with medium force and re-dip your foil often. Properly dry vessel after cleaning, else rusting will reoccur.

**(K) Nickel:** Clean it by simply rubbing with cloth and some vaseline. Later rub it off with little ammonia. Prepare a solution of water and ammonia in equal proportion in a container large enough to place the nickel-plated items. Dip the items in the solution for 30 minutes. Remove the items from the solution and scrub them with steel wool. Dry them with a clean, soft cloth. Repeat until the nickel-plated finish is clean. Rub a non-abrasive metal or chrome polish on the nickel-plated finish. Rub it well to restore it to a shiny finish.

**(L) Glassware:** Normally warm soapy solution is sufficient enough to sparkle glass ware. In the final rinse, washing blue can also be added. Sparkle with tissue paper. However, stubborn stains have to be removed with the help of washing soda. Hot vinegar can remove paint stains from glass. Remove hard water stains by dipping glassware in distilled water or rain water.

**(M) Chinaware:** Rub stained china with a little salt or vinegar on a damp cloth or cloth dipped in soda bicarbonate. Methods used to clean glassware can also be safely used to clean china ware. Remove mineral deposits from glass coffee pots and teapots by boiling full-strength cider vinegar in the container for 15 minutes.

**(N) Plastic:** Use warm soapy water to clean all types of plastics. Do not use solvents, harsh abrasives, to remove stains from plastic or rubber. A paste made of baking soda and water is very effective for removing stubborn stains from plastic and rubber utensils. Apply paste to plastic with a sponge or soft cloth. A synthetic scouring pad can be used on rubber.

**(O) Wood:** Remove stains with a solution of 1/4 cup chlorine bleach mixed in one litre of warm water. Rinse and dry, then coat with vegetable oil. Remove odors by rubbing the surface with a slice of lemon. Unless special stain resistance

treatment is given to the wooden tableware, rub it over occasionally with little sweet oil on a soft cloth. If marked or stained, it can be improved by rubbing (the way of the grains).

**(P) Glass panes:** Dust window panes with soft duster. Spirit may also be used to remove paint stains. For cleaning mirrors, moisten finely powdered chalk with spirit, water or kerosene. Apply on mirror and leave it to dry. Then rub with a clean newspaper. Even plain wet newspaper can be rubbed over and later removed with dry one. Ink is an excellent cleaner of glass panes and mirror.

**(Q) Stone/ marble:** Wash with warm soapy water.

**(R) Clay:** If your clay pot becomes stained or takes on pungent odors, fill the cooker with water, add 1 to 4 tablespoons baking soda, and let it stand. If mold spots appear on a clay pot, brush the surface with a paste made of equal parts baking soda and water. Let it stand 30 minutes, preferably in strong sunlight; brush the paste away, rinse well in clear water and dry.

#### ACTIVITY

Conduct a market survey for different cleansing materials available in market. Study their content and enlist the direction for use.

#### THINGS TO REMEMBER

- É Cleaning refers to removal of all dust, dirt and foreign matters from various household surfaces.
- É Numerous cleaning implement like brushes, brooms, dusters, sponge, dust pans, buckets, sponges and cleaning materials are required for cleaning household surfaces.
- É Cleaning adds to safety, comfort and satisfaction of family.
- É There are mainly 3 schedules of household cleaning i.e. daily, week/monthly and festive cleaning.
- É Eco-friendly cleansing material for different household articles/ surfaces can be prepared at household level using simple ingredients.

### QUESTION BANK

#### Objective type questions

1. Removal of all dust, dirt and foreign matters from various surfaces is called \_\_\_\_\_.
2. \_\_\_\_\_ is the best way to physically remove dirt and microorganisms.
3. Cleaning products should be selected on the basis of their use, safety and \_\_\_\_\_.
4. \_\_\_\_\_ oil is used for preparing leather polish.
5. Cleaning implements include
  - (a) Brushes, sponges, brooms
  - (b) Soaps and detergents
  - (c) Mud and saw dust
  - (d) All of these
6. The daily routine of cleaning should start with
  - (a) Sweeping
  - (b) Mopping
  - (c) Dusting
  - (d) Opening of doors and windows
7. Spring cleaning is done
  - (a) Every week
  - (b) After one month
  - (c) After six months
  - (d) Annually
8. Weekly cleaning includes
  - (a) Sweeping the room
  - (b) Shake the rug and door mats outside the doors
  - (c) Mopping
  - (d) Removal of cob-webs from the room ceiling
9. Vinegar and salt preparation makes a good clearer for copper and brass. true/false
10. Readymade cleansing materials should be preferred over homemade eco-friendly cleansing agents. true/false
11. Proper cleaning helps bringing life satisfaction above other reasons. true/false

12. Leather polish is prepared by mixing linseed oil and vinegar.  
true/false
13. Define the term cleaning.
14. Enlist two cleaning implements and cleaning agents needed for cleaning.

**Short answer type questions**

1. Why cleaning is considered important?
2. What are the different types of cleaning implements required for cleaning of house?

**Long answer type questions**

1. Explain in detail different eco-friendly substitutes for cleaning household items and surfaces.

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## CONSUMER EDUCATION AND PROTECTION

For living day to day life, we need many goods and services like; grocery items i.e. flour, pulses, milk/milk products, vegetables, fruits, ghee, oil, spices etc, clothing, cosmetics, soaps, shampoos, stationery items, books etc. Apart from these goods we require various services. For example, financial services from banks, post offices, insurance companies, educational services, services of doctors, and transport and telecommunication etc. we purchase these goods from markets and there are many service providers for the services we require in our life. When you purchase these goods and services, you become consumers..

While buying these items from markets, you will come to know that different brands of an item are available in the market and their prices and quality also varies for example different types of biscuits are available, sometimes you get inferior quality at more price how to choose the best at best price? How to compare the cost and quality of different products needs to be understood.

After reading this chapter you will be able to know

- **Who is a consumer**
- **Need and importance of consumer education**
- **Consumer problems related to purchase of household goods.**
- **Consumers aids for their protection i.e. standardization, labels, marks, advertisements etc.**
- **Consumer's rights and responsibilities**
- **Consumer protection act 1986 and ways for seeking redressal for grievances.**
- **Who is a consumer**

A consumer is an individual who purchases / uses goods and services for satisfying his/her wants. So all of us are consumers, We have to consume certain goods and utilize various services to survive e.g. students takes the services of school teacher, buys food items from school canteen and books from stationary shop. Patients take service of a doctor and so on. So consumers constitute the largest segment of society, but they are unorganized. Therefore, average consumer in India is facing large number of problems for example adulterated / sub-standard materials, short weights / measures, over pricing, misleading advertisements etc. and is exploited by the manufacturers and sellers. So, it is important to learn to consume in such a way that we get the most out of every paisa we spend. Therefore consumer education has become a necessity in modern



times. It is the right education that would enable us to act as informed consumers throughout our life. Therefore, the purpose of consumer education is to teach people how to consume. Consume means to buy, to use and to dispose of scarce products and services in order to fulfill our needs.

**Consumer education** is the process of gaining knowledge and skills needed in managing consumer resources and making purchase decisions that will result in maximum satisfaction.

➤ **Need and importance of consumer education**

Consumer education has become a vital necessity in modern times because of high pressure selling method that force the consumers, both old and young, to part with their hard earned money. Consumer education enables an individual to;

- (A) think critically about promotional practices of manufactures and be able to analyse whether they are being informed correctly or being taken for a ride by sales gimmicks.
- (B) make wise use of money and make intelligent choices while purchasing.
- (C) derive maximum satisfaction from limited resources
- (D) Guard himself against business malpractices and seek redressal of his grievances
- (E) Know his rights and responsibilities as consumers
- (F) Know about redressal machinery for solution of their purchase related problems
- (G) So consumer education provides information and guidance to students / families about handling of money, management and spending of money, wise buying practices, their consumer protection rights and measures, so that they cannot be fooled in market.

➤ **Consumer problems related to household items and remedial measures**

Today consumer in India faces a number of problems in the market, government and private offices. A few examples of these problems are being listed here in order to make you aware about these so that you remain vigilant while stopping and protect yourself from being cheated. Problems related to household goods are as under:

- (A) Adulteration
- (B) Short weights and measures
- (C) Brand imitations

- (D) Over pricing
- (E) Misleading advertising
- (F) Sale gimmicks
- (G) Lack of safety and quality control regulations
- (H) Unfair warranties

**(A) Adulteration**

It is a common problem wherein some substances are added or removed from original products as a result of which its composition, nature or quality gets altered. It is a major problem of consumers as it causes many health hazards and financial losses. It can only be checked if consumers are alert. Apart from food, adulteration is also common in soap, detergents, textiles, jewellery, etc. consumers have the following role to curb this menace.



Whenever any defect is suspected in any food item; either in taste appearance or flavor, complain to shopkeeper and get the product exchanged

Also report the matter to District Health Officer, so that he may check the whole lot

If the shopkeeper, refuses to cooperate then;

- (i) Get your food samples, soap, detergents, etc. analysed by public analyst of your area.
- (ii) Adulterated textiles can be got analysed from: Textile testing laboratory
- (iii) Send your complaint related to food adulteration to:
  - (a) Food and drug Inspector  
C/o Civil Surgeon, of your district
  - (b) Director Health Services Punjab, Chandigarh
  - (c) District Consumer Dispute Redressal Forum, of your district

**To safeguard yourself from adulterated goods;**

É Always buy from a reputed shop;

É Look for the following information on packages;

- (i) Manufacturing/packing organization name and address
- (ii) Ingredients used in package
- (iii) Net weight
- (iv) Batch no. / code number / lot number
- (v) Date of manufacture/packing
- (vi) Best before use date / expiry date
- (vii) If the product is claimed to be enriched with nutrients, see quantities of minerals, proteins or vitamins or labels.
- (viii) Declaration regarding food additives
- (ix) Maximum Retail Price
- (x) Quality mark (Agmark ó in case of spices, edible oils, ghee, honey, butter, atta, etc.  
  
ISI mark in case of confectionery, biscuits, vansapati, milk powder, coffee, etc.  
  
FPO mark in case of jams, chutney, jellies, sauce, etc. M.F.P.O. license No. in case of meat and meat products.
- (xi) Vegetarian / Non-vegetarian declaration i.e. Green or Brown logo.

Note: Don't purchase loose spices. Sale of loose powdered spices has been banned by Govt. of India w.e.f. 22 February 1995.

For bathing soap, check TFM\* (Total fatty matter), Quality mark.

\* According to Indian Standards, the minimum TFM in toilet soap is required to be 60%

**(B) Short weights and measures**

Do you remain alert while shopkeeper weighs or measure the item you purchase. Are you aware of frauds related to weighing and measuring?



There is a great loss of our hard earned money when we get less than what we pay for. Following precautions must be observed to avoid cheating due to short weights and measures:

- (i) Check that weights and meters have a certified stamp. If it is not there or year of seal is old, then it is a case of complaint (Figure-I).
- (ii) While purchasing fabrics, keep a watch on method of measuring the meter. Do not allow the shopkeeper to stretch the fabric unnecessarily while measuring it.
- (iii) While purchasing gold jewelry, make sure that the balance is not kept under fan. Only class II (high accuracy) and class I (special accuracy) balances are permitted in jeweler's trade.
- (iv) While taking petrol, ensure that indicator is brought to zero before delivery.
- (v) While taking kerosene from conical measure, check the inside of measure for any false bottom and allow sufficient time for the foam to settle down.

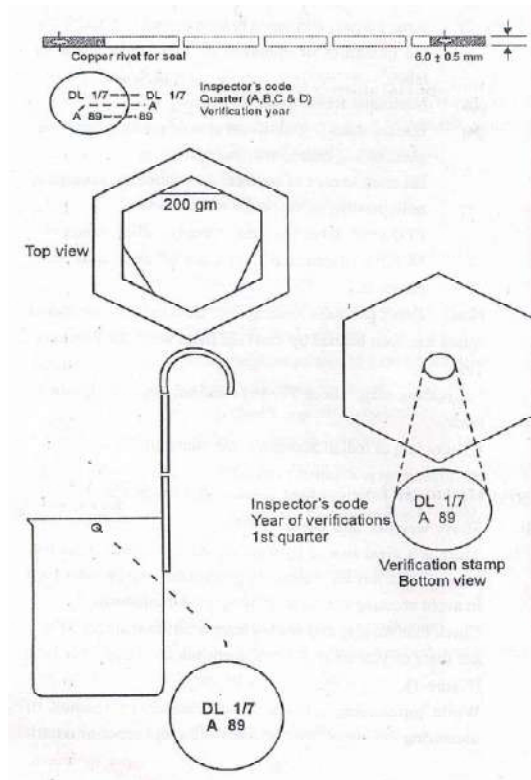


Fig. 7.1: Standard Meter, Weights and Measures

(vi) **Remember**

- É Use of wooden beam scale is prohibited
- É Weighting sweets with box is illegal

(vii) Create consumer movement and boycott the shopkeepers who underweigh the material

(viii) For complaints of short weights and measures you can report to:

- É Inspector, weight and measures, of your area
- É The comptroller, weight and measures, Pb. Govt. SCO-2409, IInd Floor, Sector 22-C, Chandigarh
- É District Consumer Dispute Redressal Forum of your district

### (C) Brand Imitation

Now a days markets are flooded with fake products. Soaps, shampoos, cosmetics, tooth pastes and even the medicines are imitated. There are 2 types of spurious products in the market:

- (i) **Counterfeit products:** These are the fakes that use same name, design, colour scheme and even the same name and address of the manufacturer as that of the original.
- (ii) **Pass off Products:** These are the fakes that use similar sounding names with deceptively similar color scheme and packing = Ariel could be Real, Tata salt be Taja salt (Fig. 2).



#### *Brand Imitation*

These fakes can do lot of harm. Fake biscuits, chocolates, etc. can result in serious health disorders, fake cosmetics and shampoos can cause severe allergic reactions, while fake medicine can be murderous. To avoid such consequences, the consumers should follow the below listed guidelines:

- (i) Deal with reputed shops.
- (ii) Check spelling of brand name, logo, name of manufacturer carefully.

- (iii) Be wary of unusually low priced products.
- (iv) Return fake and never use these.
- (v) Retain bill, product carton or photograph of a fake.
- (vi) Write to concerned company.
- (vii) Inform consumer organization of your area.

**Where to report about fake products.**

Log onto website [WWW.fake-busters.com](http://WWW.fake-busters.com) and report the matter. This site educates consumers about genuine and fake products and also gives rewards to informers of fakes.

**(D) Over pricing**

When a product is in demand, the manufacturer increases its price. Sometimes, they charge high price to exploit consumers who relate high price to quality.

To protect yourself from cheating due to overpricing:

- (i) Never pay more than MRP (Max. Retail Price).
- (ii) Bargain and ask for discount on MRP.
- (iii) In case seller is asking for more than MRP, complain to:

District Consumer Dispute Redressal Forum

Or

Chairman

MRTP (Monopoly and Restrictive Trade Practices), New Delhi.

**(E) Misleading Advertisements**

Advertisements change the mind of consumers. Most of these give bogus, imaginary, misleading and deceptive description of a product and compel the innocent customers to spend their money on bogus items. So as wise consumer you should:

- (i) Understand the advertisement clearly.
- (ii) Not be misled by false claims of advertisement.

- (iii) Use your own information, expert guidance and opinion.



**(F) Sale gimmicks**

Modern sellers use various tricks to induce consumers to buy. These include reduction sale or discount sale, free gift or introductory offer, etc. Barring a few genuine ones others are just an eyewash. So you should be very careful while purchasing and should purchase only according to your needs and budget.



**(G) Lack of safety and quality control regulations**

There is no check on the production and sale of duplicate, substandard household appliance. Many of these do not even meet the safety standards and can cause various accidents like fire, electrical shocks and even death. To avoid such mishaps, always insist on buying products bearing ISI or ISO marks.

**(H) Unfair Warranties**

Many warranties are confusing, ambiguous and are favourable to manufactures. Sometimes conditions of warranties are not easily readable and understandable. So, for avoiding any cheating in this regard, consumer should also compare the conditions of warranty while comparing the different products and read and understand the conditions of warranty carefully.



➤ **Consumer aids- standardization marks, labels, advertisements**

A consumer aid can be defined as anything written or illustrated that assists a consumer in the proper selection of goods. Few aids that help consumers in making choice in the market are:

standardization marks, labels and advertisements. These provide information, guidance and reassurance. These help in right selection of products in the market. But the consumers must learn to differentiate the information and be able to choose the needed products from the ones that are of no use.

**(A) Standardization marks:**

Keeping in-view interest of consumers, government has undertaken many initiatives for maintaining quality of products. Govt is operating certification schemes under which quality assurance marks are provided. These marks assure the buyer that the product has been tested and found to be of good quality. These marks are given when a product successfully passes through certain process, as specified by the government to ensure quality of the product. Following are some standardization marks, which help in making right choice of products.

**(i) Agmark**



*Fig. 7.2*

The Agricultural Marking (Agmark) (Fig. 7.2) is a certification mark of Government of India and conveys an assurance about the quality and purity of the agricultural produce.

Agmark can be seen on food stuffs like edible oils, butter, ghee, spices, honey, wheat atta, besan, rice etc.

**(ii) ISI**

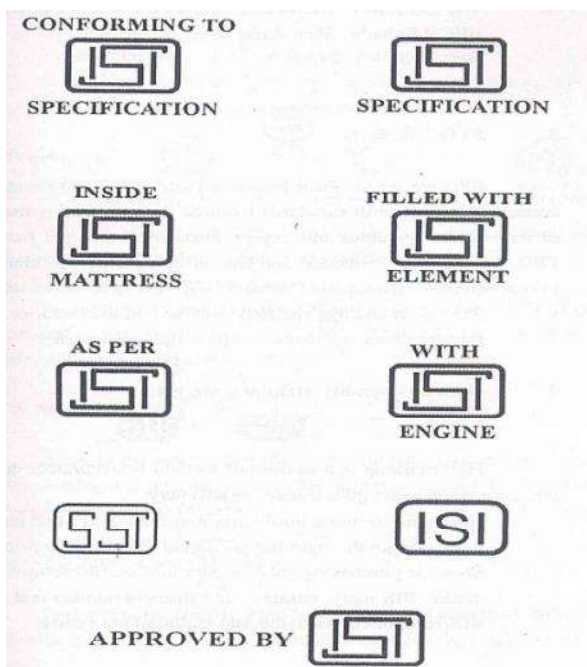


*Fig. 7.3*

ISI mark (Fig. 7.3) of certification is given by Bureau of Indian Standard (BIS)

It covers various items like electronic goods, LPG cylinders, pressure cookers, stoves, aluminum utensils, razor blades, helmets, hosiery goods, biscuits, condensed milk, baby foods, vanaspati, food additives, mineral water and cement etc.

Always look for genuine ISI mark. The genuine standard mark will carry not only the ISI mark. The genuine standard mark will carry not only the ISI monogram, but also the relevant standard number. Following are some imitations of ISI mark. (Fig. 7.4)



*Fig. 7.4: Examples of Deceptive Marks*

If you come across any misuse of ISI mark or have any problem with an ISI marked product that you have bought, you can write to:

The Consumer Affairs and public Grievances Department, BIS,  
9, Bahadur Shah Zafar Marg, New Delhi 6 110002.

**(iii) FPO Mark**



*Fig. 7.5*

FPO stands for Fruit Products Order. The FPO (Fig. 7.5) standards are concerned mainly with standards required for maintaining the quality of fruits and vegetables and any products manufactured from them FPO regulate the production and sale of jams, jellies, ketchups, fruit juices, squashes, frozen and canned foods. FPO specified standards of

- É Sanitation and hygiene to be followed in the factories.
- É Preservatives, additives and packaging to be used.

**(iv) Hallmark quality standard for gold**



*Fig. 7.6*

Hall marking is a fool proof method to accurately determine and record the exact gold content in jewellery

- É Hall mark provides third party assurance and satisfaction that you have got the right purity of gold for the given price.
- É So while purchasing gold jewelry look out for following three marks: BIS mark, caratage and fineness number and mark of BIS recognized Assaying and Hallmarking centre.

SILVER	GOLD	PLATINUM
800	375 9 carat	850
925 Sterling	585 14 carat	900
958 Britannia	750 18 carat	950
999	916 22 carat	999
	990	
	999 24 carat	

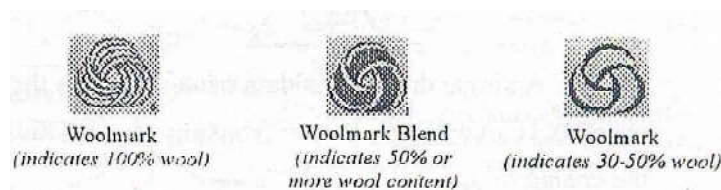
(v) **ECO Mark**



*Fig. 7.7*

- É Eco mark is for labeling products as environmentally friendly:
- É Eco mark (Fig. 7.7) indicates that products can be recycled, biodegradable and energy saving.
- É An Earthen pot is the logo for eco mark scheme.
- É It is given for various products such as soap, detergents, plastics, batteries, cosmetics and paints, etc.

(vi) **Woolmark**



*Fig. 7.8*

Wool Mark is a certification mark which appears on wool or woollen garments of quality. It indicates that the wool is pure.

### **Special purpose identification marks**

Besides, above mentioned quality approval marks, following are some other marks on labels of household products. Consumer should be able to identify these also.

**(i) CE Marking:**

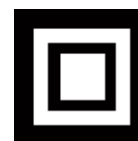
It means that a manufacturer claims that the product conforms to minimum legal requirement for health and safety as laid down in EU (The European Union) Directive.



**(ii) Double insulation:**

This symbol of electrical products relates to its electrical safety:

It tells that there are two layers of insulation between the live parts and the user.



**(iii) Recycled paper:**

The symbol showing three arrows forming a triangle is recognized internationally as products, magazines, paper, cardboard packing etc. made from recycled paper.



**(iv) Water proof:**

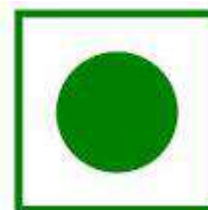
A single droplet inside a triangle shows that product is splash proof and can withstand water from any angle. This symbol is found on the casing of an outdoor light.



**(v) Vegetarian/non-vegetarian mark**

This mark indicates that the product is 100% vegetarian. This is found on biscuits, breads and other packaged eatables etc.

By learning to identify the quality approval marks, you can make better choice, and protect your right to safety.



**(B) Labels:**

A label may be a simple tag attached to the product or a printed sheet pasted or engraved on the package. The label may carry only the brand name, manufacturer name or product information to assist buyer in wise selection of a product. Labels perform several functions such as;

- (i) It helps in identification of product or brand.
- (ii) It provides description of the product; who made it? Where, when it was made? What are its contents, how it is to be used?
- (iii) It helps in promotion of the product.

**Pre-requisites of a good label**

Manufacturers are bound to provide the basic and essential information through label such as;

- (i) Name of the product
- (ii) Brand name
- (iii) Ingredients used in case of food items
- (iv) Preservatives, colouring agents used in case of processed food items
- (v) Fiber content in case of clothing items
- (vi) Best before use date
- (vii) Standardization mark
- (viii) Quantity (net weight/measure)
- (ix) Maximum retail price
- (x) Manufacturer's details; name, address, country
- (xi) Registration number
- (xii) Batch No./License number of product
- (xiii) Directions for use/storage and disposal
- (xiv) Warnings, if any

A good label must include all above mentioned information. It is the duty of a consumer to read the label carefully before buying the product.

**(C) Advertisement**

A manufacturer usually advertises his product to inform the consumers about the product. Advertisement is used to educate, to inform and persuade the consumers about the product. But sometimes advertisements are luring and misleading. So the consumers must analyze the advertisements carefully and should not be fooled by tall claims of advertisers such as; "become fair in seven days", "reduce weight in a month", "Extra large", "Full of nutrition", "Memory booster" and so on. Many advertisers play with the emotions of consumers and use tricky words to change the psyche of consumers. So consumers should remain alert and should not be influenced by misleading and over rated claims of advertisers. Consumers should learn to read and understand the advertisement carefully to be able to choose the product according to his needs.

### ACTIVITY

Carefully watch the T.V. advertisement on cosmetics and washing detergents. Analyses these in terms of

- (i) Information provided
- (ii) Claims made
- (iii) Not the tricky/misleading words and line, if any

## ➤ Consumer Protection rights and responsibilities

We have certain rights and responsibilities as consumers. We need to know about these to be wise and vigilant consumer so as not to be cheated by sellers or service providers. To be protected against harmful products e.g. adulterated food, unsafe electrical appliance.

### Consumer rights

It is evident from the earlier discussion in this chapter that consumers are being exploited in many ways. So knowledge of consumer Rights is important as it empowers consumers to protect themselves in the market place. By knowing their Rights, consumers can seek redressal when any Rights are violated. Consumers have following rights;

**Right to basic needs:** This refers to fulfillment of basic needs not only to survive but also to lead a dignified life. The basic needs include; food, shelter, clothing, electricity, safe water, education and medical facilities.

**Right to safety:** Right to safety means the right to be protected against marketing of goods and services which are hazardous to life and property.

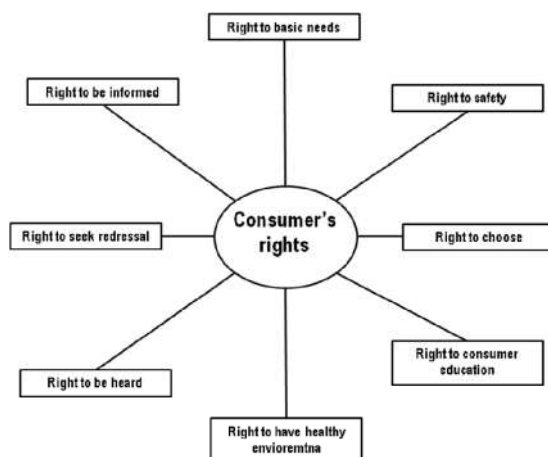


Fig. 7.9 : Consumer's Rights

**Right to information:** The Right to be informed about the quality, potency, purity, standard and price of goods or services, as the case may be, so as to protect the consumer against unfair trade practices. The right to be informed also include the protection against misleading advertising, labeling or other practices. Consumers should be provided with adequate information enabling them to act wisely and responsibly.

**Right to choose:** It means right to be assured, wherever possible, access to a variety of goods and services at competitive price. In case of monopolies, say, railways, telephones etc. It means right to be assured of satisfactory quality and service at a fair price.

**Right to be heard:** The consumer's interests will receive due consideration at appropriate level. It also include right to be represented in various forums formed to consider the consumers welfare.

**Right to seek redressal:** It means the right to seek redressal against unfair practices or restrictive trade practices. It also include right to fair settlement of the genuine grievances of the consumers.

**Right to consumer education:** It means the right to acquire knowledge and skill to be an informed consumer.

**Right to healthy environment:** It means the right to a physical, environment that will enhance the quality of life. This right involves protection against environmental problems over which the individual consumer has no control. It acknowledges the need to protect and improve the environment for present and future generations.

#### **Consumer's responsibilities**

- Always receive Cash Memo.
- Read carefully the product information given on the package.
- Give priority to quality mark items (ISI, FPO, Agmark etc.).
- Do not let yourself get carried away by attractive labels, packaging, free gifts and the sale tricks
- Check quality, weight and price of items purchased.
- Do not pay more than MRP.
- Preserve the warranty card duly signed and dated by dealer.
- Never sign a contract before reading it carefully.
- Do not waste any product.
- Make an effort to conserve resources so that they can last longer.
- File complaint in case of deficiency in goods or services.



**Acts for consumer Protection** The Government has enacted a number of laws to protect consumers' interest. Some of the important laws are:

- É Agricultural produce (Grading and marketing Act, 1957)
- É Drugs and Cosmetics Act (1940).
- É Indian Standard Institution Act (1952)
- É Prevention of Food Adulteration Act (1954).
- É Essential Commodities Act (1955)
- É The Standard of Weights and Measures Act (1958)
- É Monopolies And Restrictive Trade Practices Act (1969)
- É Packaged Commodities Order (1975)
- É Environment Protection Act (1986)
- É Consumer Protection Act (1986).

#### **Agricultural Produce (Grading and Marketing Act 1957)**

Agmark Act, 1957 is concerned with the standardization, grading and quality control of agricultural and allied commodities. It was amended in 1986 and now referred as APGM Act, 1986. This Act provides for redressal of grievances of consumers of Agmark product. Enforcement of this Act is with Director Agriculture, Government of India.

#### **Drugs and Cosmetics Act (1940)**

The Act regulates the import, manufacture, sale and distribution of drugs and cosmetics. It protects consumers from drugs and cosmetics of substandard quality. Under this law it is mandatory for every dealer to issue a cash memo for drugs sold and all drugs should be standard quality. Now, this Act has authorized any recognized consumer organization to pick up the drug cosmetics for testing and analysis. The complaints regarding spurious drugs can be made directly in consumer court or through drug inspector.

#### **Indian Standard Institution Act (1952)**

This Act provides for standardization, marking and quality certification of goods. The Government amended and replaced this Act with the BIS (Bureau of Indian Standard Act, 1986). Its enforcement is with BIS.

#### **Prevention of Food Adulteration Act (1954)**

It aims at protecting the consumers from hazards of food adulteration and to ensure the sale of wholesome food to consumer. Remedy and enforcement under this Act is with Health Officer, civil and consumer court.

#### **Essential Commodities Act (1955)**

It provides for the control of production, supply and distribution of essential commodities. Its aim is to prevent black marketing and maintain supply of essential goods. Enforcement and remedies under this Act is available with Food and Supplies Department and police.

#### **The Standard of Weights and Measure Act (1958)**

This Act is of great importance to every consumer, who is often cheated in terms of quantity, and denied the full value of his money. This Act provides for uniform standards for

weighing and measuring commodities to protect consumer interest. It prohibits manufacture of non-standard weights and measures and counterfeiting of seals. The enforcement of this act is the responsibility of Government of Union Territory or a State, and is carried out by a controller of weights and measures.

#### **Monopolies and Restrictive Trade Practices Act (1969)**

MRTP act protects the consumers and curbs trade mal-practices and unfair trade practices, whereby consumer is cheated such as the so-called 'bargain offer', reduction sales, misleading advertisements, lotteries etc. its enforcement is with MRTP commission and Ministry of Industries.

#### **Packaged Commodities Order (1975)**

This act was framed to regulate packaged commodities which began to flood the market and confuse the consumers. Under this act, every package should have complete information label. In addition it provides for spot checking of package on the premises of manufacturers, packers or retailers.

#### **The Environment Protection Act (1986)**

This act was enacted to protect consumers from any kind of pollution and to provide clean environment.

### ➤ **Consumer Protection Act (1986)**

CPA is one of the most progressive and comprehensive legislation enacted for the purpose of protecting welfare of consumers. This act intends to provide simple, speedy and inexpensive redressal to the consumer's grievances. This act protects against all kinds of exploitative and unfair dealings, such as overpricing, misleading advertising, defective goods and cheating. The act applies to all goods and services in both private and public sectors, except those rendered free of charge or under personal service contract. Therefore, this act is explained in detail so that students/teacher may make a complaint against their genuine grievances.

#### **Who is a consumer?**

All of us are consumers of goods and services.

Consumer is any individual who purchases goods or avails or hires services for which he makes payment/part payment.

#### **Who can file a complaint?**

- É A consumer (as above)
- É Any registered voluntary consumer organization
- É The central government
- É The state government/UT administration

**When can a complaint be filed?**

Under the act, a complaint can be made in writing in the following circumstances:

- If you have suffered loss or damage as a result of any unfair trade practices adopted by the trader.
- É If the goods purchased suffer from any defect
- É If the services hired/availed suffer from deficiencies in any respect.
- É If you have been charged a price in excess of the price displayed or fixed by or under any law for the time being in force.

**Where can you file a complaint?****DISTRICT FORUM:**

If the cost of goods or services and compensation asked for is or less than Rs. 20 lakhs, you can file a complaint to President, District Consumer Dispute Redressal Forum of your district.

**STATE COMMISSION:**

The State Commission have power to deal with cases between Rs. 20 lakh to 1 crore. Address of State Commission is as under;

President  
State Consumer Disputes Redressal Commission  
Punjab, SCO No. 3009-1,  
Sector 22-D, Chandigarh

**NATIONAL COMMISSION:**

The National Commission handles cases over Rs. 1 crore and its address is;

President  
National Consumer Disputes Redressal Commission  
8 Teen Murti Marg,  
New Delhi 6 110011

**How to file a complaint?**

- É In the revised Act, payment of prescribed fee would be compulsory when filing a complaint. A complaint can be sent by post or presented in person by the complainant or his authorized agent.
- É Usually the Forums require 3-5 copies of a complaint.

**Contents of a complaint**

A complaint should contain the following information:

- (i) Name and complete address of the complainant

- (ii) Name and complete address of the opposite party or parties as the case may be
- (iii) Date of purchase/service obtained
- (iv) Amount paid for consideration
- (v) Item or goods with quantities/nature of service
- (vi) Whether the complaint relates of unfair trade practice/defective goods/ deficient service/ charging excess price.
- (vii) Copies of bills/vouchers/receipts and copies of correspondence made, if any
- (viii) The relief sought/whether removal, replacement or compensation.

#### **Time limit for deciding complaint**

The forums are required to decide the admissibility of a complaint within 21 days. The forums/commissions are required to decide complaints as far as possible within a period of 3 months from the date of notice received by the opposite party. When analysis or testing of the commodities is required the complaints can be decided within 5 months.

#### **Relief available**

The forums/commissions can order the following reliefs:

- É Removal of defects from the goods
- É Replacement of the goods
- É Refund of the price paid
- É Award of compensation for the loss or injury suffered

#### **THINGS TO REMEMBER**

- É A consumer is a person who buys and uses goods and services to satisfy his wants.
- É Consumer education provides guidance to students about handling of money, wise buying practices, consumer protection right and acts
- É A consumer faces many problems while purchasing;
- É Price variation
- É Adulteration
- É Short weights/measures
- É Brand imitation
- É Poor quality

- (i) Misleading labeling
  - (ii) Misleading advertisements
  - (iii) Lack of quality control
  - (iv) Poor after sale service
  - (v) Sale gimmicks
- É Consumer education helps consumer to know what, where, when, how and how much to buy
- É Consumer has eight basic rights and responsibilities
- É Labels, standardization marks, advertisements and legislations are main consumer aids
- É Consumers need to be organized, aware and should discharge their duties effectively to avoid cheating in market.

### QUESTION BANK

#### Objective type questions

1. An individual who purchases/uses consumers goods and services for satisfying his wants is called \_\_\_\_.
2. Always prefer goods with \_\_\_\_ marks.
3. We should always look for \_\_\_\_ inclusive of all taxes during purchase.
4. \_\_\_\_ is the only document required for redressal of any grievance.
5. Addition or removal of some substances from original products.
 

(a) Sale gimmick	(b) Over pricing
(c) Adulteration	(d) Fraud
6. Agmark is given in case of
 

(a) Confectionery, biscuits, milk products etc.	(b) Spices, edible oils, ghee, honey etc.
(c) Jam, chutney, jellies etc.	(d) All of these
7. According to Indian standards the minimum total fatty matter in soaps is required to be
 

(a) 70%	(b) 60%
(c) 50%	(d) 40%

8. FPO stands for;  
 (a) Food purchase organization (b) Food product organization  
 (c) Food private organization (d) None of these
9. Under consumer protection act (1986) complaints for cases above one crore are address to state commission. true/false
10. Complaints regarding food adulteration are address to Director Health Services of the state. true/false
11. Define consumer
12. What is meant by consumer education
13. Enlist any 2 important consumer protection rights
14. Which agency provides ISI mark?
15. Name any two food item having Agmark.

#### **Short answer type questions**

1. List three common malpractices adopted by a vegetable vendor and how will you check him.
2. Enumerate any two advantages and disadvantages of advertisements.
3. Discuss in brief importance of consumer education.
4. What is effect of advertisement on consumer purchase?

#### **Long answer type questions**

1. Write in detail about various consumer aids.
2. Explain in detail about the Consumer Protection Act, 1986.
3. Elaborate on -Right to have Safe Environment and -Right to Safety

\*\*\*\*\*



***SECTION B***

**APPAREL AND  
TEXTILE SCIENCE**



## FIBRE

Have you ever thought what is the dress you are wearing made up of ? What comes to your mind is fabric but what is a fabric made up of ? Just as we have hair on our head, similarly we have short hair like structures which occur in nature or produced artificially from which a fabric is made. These short hair like structures are called fibres. This chapter deals with interesting facts about

- **Classification of Fibres:**
- **Sources, Characteristics and use of different fibres**

A **fibre** can be described as any substance natural or manufactured that is suitable for being made into a fabric. It is actually the raw material used to make a fabric. Fibres may be used in their basic form or blended with other fibres to produce a variety of fabrics. There are several essential properties which fibres should possess to make a good quality yarn. To create a fabric, fibres are spun into yarns which are then woven into fabric.

**Fibres  $\Longrightarrow$  Yarns  $\Longrightarrow$  Fabric  $\Longrightarrow$  Apparel**

### ➤ **Classification of Fibres :**

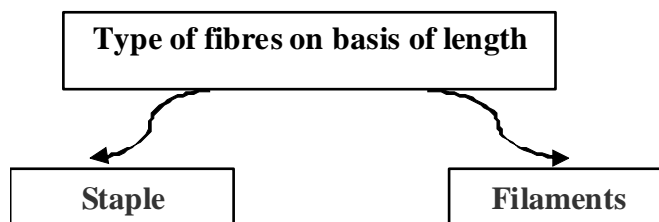
The fibres used in textile industry are of various types. They differ from each other in many things and so they are classified according to:

- (A) Length
- (B) Origin or source from which they are obtained
- (C) Heat conductivity

#### (A) **Classification according to length:**

Fibres obtained from different sources vary in their sizes. Some are very short while others are extremely long. Based on their length, fibres can be divided into:

- (i) Staple fibre
- (ii) Filaments

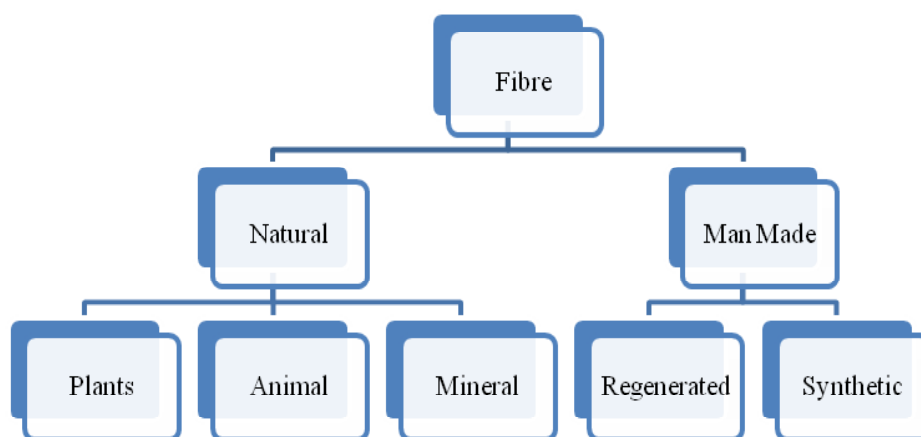


*Fig.. 1.1 : Fibre Classification according to Length*

Any fibre with a limited or finite length is called **staple fibre**. These small length fibre like **cotton, wool, jute, rayon, polyester** etc. and are measured in inches. All natural fibres except silk are staple fibres. The fibres having unlimited or infinite length are called **filaments**. Filament fibres are continuous (long) fibres which can be natural like **silk** or **man made like nylon, polyester** etc.

**(B) Classification according to source or origin:**

Fibres can be **natural or manmade** on the basis of their origin.



*Fig. 1.2 : Fibre Classification according to Origin*

**(i) Natural Fibres:**

Natural fibres are hair-like threads obtained directly from nature. They are obtained as continuous filaments similar to thread. They can be spun or twisted into yarn to form a cloth or can be converted into nonwoven fabrics, such as paper or felt. They can be classified according to their origin into the following categories:

- (a) Plant fibres or Vegetable fibres for example cotton, jute etc.
- (b) Animal fibres for example wool, silk etc.
- (c) Mineral fibres for example asbestos.

**(a) Plant fibres**

The basic material of all plant fibres is cellulose. Cellulose is formed by glucose chains bound to each other. It consists of carbon, hydrogen and oxygen. The characteristics of plant fibres which make them good for summer fabrics are as follows:

- Low resiliency

- High density
- High water absorption
- Good conductor of heat
- Resistant to strong alkalis
- Resistance to moth.

**(b) Animal fibres:**

Fibres like wool and silk are obtained from animals and hence are called animal fibres. They are made up of proteins which are made up of repeated units of amino acids bound to each other. These fibres are also called protein fibres. The characteristics of animal fibres which make them suitable for winter wear fabrics are as follows:

- Medium density
- High resiliency
- Bad conductor of electricity
- Do not support combustion
- Resistant to dilute mineral acids but sensitive to stronger ones
- Sensitive to alkalis.

**(c) Mineral fibres:**

They are inorganic materials obtained from rocks. These are shaped into fibres and are mainly used in fire proof fabrics. These fibres have their uses in various industries. The characteristics of mineral fibres are:

- Fire proof and rust proof
- Resistant to acids
- Generally have high pliability except for asbestos.

**(ii) Man made fibres:**

Manmade fibres are the fibres that are made by man and do not occur in nature. The process involves breaking down their original form and then making into different fibrous forms. These are also called artificial or synthetic fibres. These are of two types:

(a) **Regenerated manmade fibres:**

A fibre manufactured by dissolving a natural material such as cellulose and then restoring or regenerating the material through extrusion and precipitation are called regenerated manmade fibres. Examples of regenerated fibres are rayon which is also called artificial silk, acetate and triacetate.

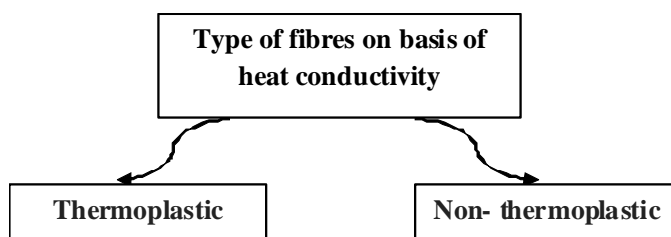
(b) **Synthetic manmade fibres:**

Synthetic fibres are completely man-made and made from organic polymers by refining crude oil or coal. Polyester, nylon and acrylic are synthetic fibres. The characteristics of manmade fibres are as follows:

- High strength and abrasion resistance
- High resiliency, elasticity and elongation
- Low moisture absorption
- Low heat resistance
- High heat setting
- High resistance to moths, mildew and insects.

(C) **Classification on the basis of heat conductivity:**

On the basis of heat conductivity and tolerance, fibres can be thermoplastic and non-thermoplastic.



*Fig. 1.3 : Fibre Classification according to Heat Conductivity*

- (i) **Thermoplastic Fibres:** These are those fibres which soften with heat and become pliable. If the applied heat is too much, the fibres melt down. This property is useful to give any desired shape to yarns by applying predetermined amount of heat. The yarns retain their shape even after washing and stretching and these fibres are resistant to friction and wrinkling. These fibres build up static electricity in cold and dry weather. Examples of thermoplastic fibres are nylon, polyester, acrylic etc.

- (ii) **Non- thermoplastic fibres:** The fibres which neither melts nor becomes soft with the application of heat are called non- thermoplastic fibres. If the temperature applied is too high, these fibres will burn. These are very soft fibres and are comfortable to wear. They do not accumulate static electricity. Examples of these fibres are cotton, wool, silk and rayon.

➤ **Sources, characteristics and uses of different fibres**

**COTTON**

The cotton fibre is the most popular and shortest of all the textile fibres. The production of cotton is one of the major source in world prosperity and economic stability. India was the first country to produce cotton and a lot of varieties of cotton are grown here from centuries.

**Source of cotton fibre:**

Cotton fibre is obtained from the fruit of the cotton plant which is grown in hot and humid areas of the world. The fruit of cotton plant is like a ball which contains a lot of seeds inside it. These seeds are covered with white and fibrous cotton fibre. The growth parameters of the plant like climate, type of soil and fertilizers used determine the quality of cotton fibre. The cotton contained balls of the plant grows to full size by the months of August or September. After maturity, the balls burst open with cotton fibre ready for picking.



*Fig.: 1.4 : An open cotton ball*

**Characteristics of cotton**

The general properties or characteristics of cotton fibre may be categorized as under:

- (A) Composition
- (B) Physical properties
- (C) Chemical properties

(A) **Composition:**

Cotton fibres are mainly composed of cellulose. It consists of 90% cellulose and 10% mineral salts and impurities.

(B) **Physical properties**

- (i) **Length:** Cotton fibres are short with length ranging from  $\frac{1}{2}$ " to 2". On the basis of length cotton fibres can be long staple, medium staple or short staple. Fibres are cylindrical and the width ranges between 16-20 microns. The ripe cotton fibre shows natural twists under a microscope. These twists are known as Convulsions and give strength to the fibre.
- (ii) **Colour:** The cotton fibres vary in colour from white to cream.
- (iii) **Feel:** The cotton fibres are soft to touch and are neither slippery nor lustrous. They are heavier as compared to other fibres like silk and wool.
- (iv) **Strength:** Cotton fibres are very strong due to their criss cross internal structure. The strength increases to about 30% when they are wet. This property is highly significant and results in less care required in handling the cotton fibre during washing, drying and ironing.
- (v) **Shrinkage:** Cotton fibres itself do not shrink but when cotton fabrics are made, they are stretched during weaving and finishing and hence cotton fabric shrinks after washing.
- (vi) **Resiliency:** The property of a fibre to come to its original condition after being crushed or crimped is called resiliency. Cotton fibres have low resiliency and hence they wrinkle easily until proper finishing is done.
- (vii) **Drapability:** It is the property of the fibre to hang gracefully after being suspended. Cotton fibres do not have good drapability and therefore needs to be given special finishing treatments like sizing and calendaring.
- (viii) **Heat conductivity and absorption:** Cotton is a good conductor of heat. It absorbs good amount of moisture and hence gives a cooling effect in summers by absorbing the perspiration. Because of these properties, cotton is widely used for clothes that are worn next to skin, sportswear and sweatshirts.
- (ix) **Effect of light:** If exposed to longer periods of sunlight, cotton fibre loses strength and also their luster. Excessive sunlight makes them look dull and faded.
- (x) **Resistance to moths:** Cotton is generally not attacked by cloth moth or larvae but can be damaged by silver fish especially when moist. It is because of this, cotton fabrics are not recommended to be starched if these are to be stored for longer periods.

Tabular representation of physical properties of Cotton		
S. No	Name of the Property	Characteristics
1	Length	Staple fibre
2	Colour	White to Cream
3	Feel	Soft to touch
4	Strength	Very strong
5	Shrinkage	Fabric shrinks after washing
6	Resiliency	Low resiliency
7	Drapability	Does not have good drape
8	Heat conductivity	Good conductor of heat
9	Absorption	Absorbs good amount of moisture
10	Effect of light	Loses strength and luster
11	Resistance to moths	Highly resistant

**(C) Chemical properties**

- (i) **Effect of alkalis:** Cotton is not affected by mild alkalis and therefore most soaps and detergents can be used safely for washing cotton. Strong alkalis can result in tenderness and loosing of strength. Dilute caustic soda is used for giving strength to cotton fibres and making them more lustrous in a process known as Mercerization.
- (ii) **Effect of acids:** Strong acids destroy the fabric rapidly. Dilute acids have little or no effect but long exposure may result in weakening of the fibre.
- (iii) **Effect of bleach:** All bleaching agents can be used safely on cotton fibre but they should be thoroughly rinsed after treatment with bleach.
- (iv) **Effect of perspiration:** Perspiration may be alkaline or acidic. Alkaline perspiration does not damage the cotton fibre but acidic perspiration may result in discolouration.
- (v) **Affinity for dyes:** Cotton cannot be dyed so easily like silk and wool but mercerization increases the affinity of cotton for dyes. Direct dyes have strong affinity for cotton fibres.

**End uses of cotton:**

Wide range of apparel products like blouses, shirts, dresses, kids wear, active wear, swimwear, suits, jackets, skirts, pants, sweaters, hosiery etc. In the area of home fashion, cotton has immense use in curtains, draperies, bedspreads, sheets, towels, table cloths, table mats, napkins etc.

**WOOL**

Wool is produced in almost all countries of the world. It has varied variety depending upon the animal from which it is procured. The use of wool can be traced back to history where the primitive man used it in the form of skin to cover his body and protect from cold environment. The long fibres are coarser than the short fibres. Depending upon the end use the hairs are given many treatments like carbonization (acid treatment), carding, drawing etc. to finally obtain wool fibre.

**Source of wool:**

Wool is obtained from the hair of sheep, camel, goat and rabbit. Quality of wool is determined by its fineness and crimp. Fine wool is shorter and has a fine crimp as compared to long coarse wool. When wool fibre is untwisted, it has a kinky appearance. Under a microscope, a wool fibre shows a lot of scales which are known as Serrations. Wool can be sheared from a living animal and it is called fleece or clip wool while sometimes it is taken from a dead animal and then it is called pulled wool.



*Fig. 1.5 : Wool being sheared from a sheep*

**Characteristics of wool:**

The general properties or characteristics of wool fibre may be categorized as under:

- (A) Composition
  - (B) Physical properties
  - (C) Chemical properties
- (A) **Composition:** The wool fibre is composed of a protein called Keratin. This is the only natural fibre containing sulphur. Besides, it also contains carbon, oxygen, nitrogen and hydrogen.



**(B) Physical properties**

- (i) Length:** The length of the fibre varies between 1 and 1/2" to 18".
- (ii) Colour:** The wool fibres may vary from off white to light cream in colour. The variation in colour is due to disulphide bonds present in the fibre.
- (iii) Crimp:** The waviness of wool is called its crimp. The crimp is similar to the curl in human hair. Crimp is responsible for giving wool its elasticity.
- (iv) Strength:** The strength of wool fibre is fairly low and it loses its strength further by almost 25% when wet. Therefore great care is required while washing woolen clothes.
- (v) Shrinkage:** Wool fibres have a tendency to shrink because when they are subjected to friction and washing, they entangle together and shrink from their original size.
- (vi) Resiliency:** Wool fibres are highly resilient and thus do not wrinkle much in regular use. The high resiliency of wool makes it widely used for carpets.
- (vii) Drapability:** Wool has excellent drapability because of its elasticity and resiliency.
- (viii) Elasticity:** Wool is highly elastic due to crimp present in their structure. This property makes wool very comfortable for free body movements in tight fitted sportswear.
- (ix) Heat conductivity and absorption:** Wool is a bad conductor of heat thus helps the body to retain its normal temperature and hence suitable for making winter wear. Wool is very hygroscopic and can absorb a lot of moisture. It can absorb water equal to 20% of its weight without feeling damp. It dries slowly thus the body does not feel chill though evaporation. It absorbs perspiration after exercise and guards the body against sudden change in temperature.
- (x) Effect of light:** Prolonged exposure weakens the woolen fabric and also discolours it.
- (xi) Resistance to moths:** Wool is easily damaged by moths such as carpet beetles hence they have to be stored with a lot of care.
- (xii) Pilling:** When subjected to friction, wool fibres are pulled out to the surface and get knotted to form small balls called pills which remain clinged to the fabric surface giving a worn out look to woolen fabrics.

Tabular representation of physical properties of Wool		
S. No	Name of the Property	Characteristics
1	Length	Staple fibre
2	Colour	Off white to Cream
3	Crimp	Shows crimp or waviness
4	Strength	Fairly low
5	Shrinkage	Fabric shrinks after washing
6	Resiliency	High resiliency
7	Drapability	Excellent drape
8	Heat conductivity	Bad conductor of heat
9	Absorption	Absorbs good amount of moisture
10	Effect of light	Loses strength and luster
11	Resistance to moths	Easily damaged by moths
12	Pilling	Small balls called pills are formed on the surface due to friction

**(C) Chemical properties**

- (i) **Effect of alkalis:** Use of strong detergents and alkalis should be avoided on wool as alkalis tend to make it yellowish, hard and rough. Strong alkalis quickly dissolve the wool.
- (ii) **Effect of acids:** Dilute acids have no or little effect but strong acids weaken the wool fibre and may even dissolve it.
- (iii) **Effect of bleach:** Strong bleaching agents like hypochlorite has a harmful effect on wool. They make wool very harsh however mild bleaches like hydrogen peroxide can be safely used.
- (iv) **Effect of perspiration:** Alkaline perspiration weakens the woolen fabric and causes discolouration hence perspiration should not be allowed to dry in woolen garments.

- (v) **Affinity for dyes:** Wool has high affinity for almost all dyes hence woolen fabrics are dyed easily and colours are also very fast on them.

**End uses of wool :**

Wool fabric is used for making different clothing like t-shirts, sweaters, cardigans etc. Apart from this, wool is also used for blankets, rugs, carpets, felt and upholstery.

**SILK**

Silk is considered as queen of all fabrics. It has a lot of shine because of its structure which allows it to refract the incoming light at different angles. Silk is a filament fibre and it is in fact the longest of all natural fibres. Silk is a natural protein fibre obtained from the secretion of a larvae. The rearing of silk worms for manufacture of silk is called Sericulture.

**Source of Silk Fibre:**

Silk fibre is the secretion of a silkworm larvae which feeds on mulberry leaves and hence the silk produced by it is called Mulberry silk or Cultivated silk. The other type of silk is called the Non- Mulberry silk or Wild silk. It is produced by the moth that feeds on oak leaves. Silk worms have a short life of about only two months and during this, they pass through four stages: egg, larvae, pupa and the adult moth. The silk fibre is formed at the larvae stage.



*Fig.:1.6 : Cocoon formed by larvae of silk moth*

**Characteristics of Silk:**

The general properties or characteristics of silk fibre may be categorized as under:

- (A) Composition
- (B) Physical properties
- (C) Chemical properties

(A) **Composition:** It is a protein fibre consisting of carbon, hydrogen, oxygen and nitrogen but it does not contain sulphur. The protein of silk is called Fibroin.

(B) **Physical properties**

- (i) **Length:** The length of the fibre varies between 300-600 meters depending upon the type and health of silk moth and the climate. Silk is very light in weight. It is estimated that about 3000 cocoons are required to make one meter of silk fabric.
- (ii) **Colour:** Silk has natural sheen and the colour may vary from off white to cream in colour. Wild silk has less luster than the cultivated silk.
- (iii) **Strength:** Silk is one of the strongest textile fibres. The long length and the tight twist of silk is responsible for high strength but it is weaker when wet so needs careful handling when washed.
- (iv) **Shrinkage:** Silk generally does not shrink as it has straight fibres however silk fabrics like crepe may show some shrinkage but ironing the damp fabric can restore the fabric to its original size.
- (v) **Resiliency:** Silk has high resiliency and do not wrinkle easily.
- (vi) **Drapability:** Silk has excellent drapability as they are highly resilient, elastic and pliable. The fall of silk is very elegant and beautiful and therefore it is widely used for making party wear dresses.
- (vii) **Elasticity:** Silk is an elastic fibre and it may be stretched to about 25% of its original length and because of this, silk fabrics are comfortable to wear.
- (viii) **Heat conductivity and absorption:** Silk is a poor conductor of heat and does not allow the body heat to radiate out. Therefore silk is warmer than cotton and is used for winter wear. Silk absorbs moisture well and therefore has a good ability to get dyed and printed. The moisture does not spread readily on silk fibre hence water spots are easily formed on it.
- (ix) **Effect of light:** Continuous exposure to sunlight weakens the silk and therefore silk curtains and drapery fabric have cotton lining attached to them to protect from direct sunrays.
- (x) **Resistance to moths:** Silk is easily destroyed by carpet beetles hence a lot of care is required in its storage.

Tabular representation of physical properties of Silk		
S. No	Name of the Property	Characteristics
1	Length	Filament
2	Colour	White to Cream. Very lustrous
3	Feel	Soft to touch
4	Strength	Very strong due to long length
5	Shrinkage	Fabric may shrink after washing
6	Resiliency	High resiliency
7	Drapability	Excellent drape
8	Heat conductivity	Poor conductor of heat
9	Absorption	Absorbs good amount of moisture but moisture does not spread readily
10	Effect of light	Loses strength and luster
11	Resistance to moths	Easily destroyed by moths

**(C) Chemical properties**

- (i) **Effect of alkalis:** Strong alkalis have harmful effect on silk and destroys its luster however mild alkalis like borax and ammonia can be safely used. This is the reason why silk can be washed only with mild soaps.
- (ii) **Effect of acids:** Silk is less resistant to acids than wool. It dissolves readily in concentrated mineral acids such as sulphuric and hydrochloric acid. Dilute organic acids increase the luster of silk and are therefore used for giving finish to silk.
- (iii) **Effect of bleach:** Chlorine bleaches damage silk fibre and cause it to turn yellow however mild bleaches like hydrogen peroxide can be safely used on silk.
- (iv) **Effect of perspiration:** Silk fibre gets damaged by alkaline perspiration and its colour also gets affected. Hence, silk garments should always be worn with a lining inside them for better durability. Deodorants which contain ammonium chloride should not be used on silk because it can damage it and result in discolouration.

- (v) **Affinity for dyes:** Silk fibre has good affinity for dyes and the colour is also well absorbed.

#### **End Uses of Silk :**

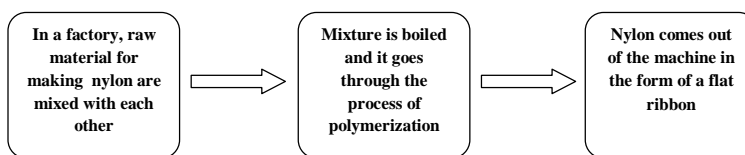
Silk is widely used in apparel in making party wear dresses, luxury items, wedding dresses, evening gowns, blouses, scarves and neckties. It is also used for very sheer fabrics. For interiors it is used in making pillows, wall hangings, draperies and upholstery.

#### **NYLON:**

Nylon is known to be the first man made fibre which is synthesized by organic laboratory chemicals. It is a polyamide fibre. The outstanding characteristic of nylon in the textile industry is its versatility. It can be made strong enough to make tire cords and fine enough for sheer, high fashion hosiery, and light enough for parachute cloth and tents. Nylon washes easily, dries quickly, needs little pressing, and holds its shape well since it neither shrinks nor stretches. Nylon is the strongest of all the man made fibres.

#### **Source of nylon**

Nylon is a man made fibre obtained from air, water and coal. A mixture of two different coal tar products are heated in air to give a condensed product called nylon polymer which is then stretched into fibres. The two most common types of nylon are nylon 6,6 and nylon 6.



*Fig. 1.7 : Nylon fibres*

### Characteristics of nylon:

The general properties or characteristics of nylon fibre may be categorized as under:

- (A) Composition
- (B) Physical properties
- (C) Chemical properties

#### (A) **Composition:**

It is made up of organic compounds comprised of carbon, hydrogen, oxygen and nitrogen in different proportions. Chemically, nylon is quite similar to protein fibres.

#### (B) **Physical properties**

- (i) **Length:** Nylon fibre is a filament fibre and so it is very long. This is one of the reasons for its good strength. Length and width of the fibres vary considerably depending upon what it is to be used for.
- (ii) **Colour:** The nylon fibres are lustrous and white in colour.
- (iii) **Strength:** Nylon is a very strong fibre. Though it is light in weight, it is very tough, pliable and has the highest resistance to abrasion as compared to other fibres.
- (iv) **Resiliency:** Nylon has a high resiliency. Fabrics made from nylon readily recover from all wrinkles and maintain their smooth appearance.
- (v) **Drapability:** The drape of nylon fibres depends upon its length and diameter. Nylon fabrics made from filament yarns have excellent drape.
- (vi) **Elasticity:** Except for spandex, nylon is the most elastic of all fibres. It retains most of its elasticity when wet and hence it does not require much care in washing.
- (vii) **Heat conductivity and absorption:** The heat conductivity of nylon depends upon the weave used for making the fabric. Compactly woven fabrics do not allow air, heat and moisture to pass through them and hence make the wearer feel warm whereas when fine nylon filaments are woven into thin, light weight and sheer fabrics, circulation of air takes place and thus such fabrics are suitable for summers. Nylon fabrics do not absorb moisture at all. This is the reason why nylon fabrics dry up very quickly.
- (viii) **Effect of light:** Nylon has a good resistance to sunlight but if the exposure is too long, white nylon gets yellowish. Bright colour nylon has more resistance to light.
- (ix) **Static electricity:** Nylon fabrics generate static electricity in dry

atmospheric conditions from the friction caused by wearing it and general use. As a result, the wearer feels minor shock.

- (x) **Resistance to moths:** Nylon is resistant to mildew. It is not affected by microorganisms and bacteria.

Tabular representation of physical properties of Nylon		
S. No	Name of the Property	Characteristics
1	Length	Filament
2	Colour	White and lustrous
3	Feel	Soft to touch
4	Strength	Very strong
5	Resiliency	High resiliency
6	Drapability	Fabrics made from filament fibres have excellent drape
7	Heat conductivity	Compactly woven fabrics have good heat conductivity
8	Absorption	Does not absorb moisture at all so dries up very fast
9	Effect of light	On prolonged exposure, turns yellowish
10	Resistance to moths	Highly resistant
11	Static Electricity	Builds up static electricity in dry weather

### (C) Chemical properties

- (i) **Effect of alkalis:** Nylon is generally not affected by alkalis however very strong alkalis should not be used for washing nylon as grease and dirt stains on it are easily removed.
- (ii) **Effect of acids:** Acids have a damaging effect on nylon. Concentrated acids like sulphuric acid, hydrochloric acid etc. decompose nylon.
- (iii) **Effect of bleach:** If washed carefully nylon fabrics retain their whiteness and needs no bleaching however if bleaching is to be done, mild agents can be used safely.
- (iv) **Effect of perspiration:** Nylon fabrics are resistant to perspiration however constant exposure to perspiration may affect the colour of nylon fabrics.
- (v) **Affinity for dyes:** Because nylon does not absorb moisture, dye penetration is difficult. It can be dyed using disperse and azoic dyes. Retention of colour is good and thus nylon fabrics do not become faded after use.



### End uses of nylon

In apparel and clothing, nylon has a varied use in making blouses, dresses, hosiery, underwear, raincoats, windbreakers, swimwear, cycle wear etc. A lot of home furnishings like bedspreads, carpets, curtains and upholstery are also made of nylon. It also has many industrial uses. It is used for making tire cord, hoses, conveyer and seat belts, parachutes, racket strings, ropes and nets, sleeping bags, tarpaulins, tents, thread, fishing line, dental floss etc.

#### ACTIVITY

Collect different fibres and paste them in front of the source from which they are obtained. Observe the difference in colour, luster and length of different fibres. Also categorize them into natural or man made fibres.

#### THINGS TO REMEMBER

- Fibre is the smallest unit from which a fabric is made.
- Fibres can be natural like cotton, wool and silk.
- Fibres can be manmade or synthetic like nylon and polyester.
- Fibres can be made into laboratories using natural raw material. Such fibres are called regenerated fibres like rayon.
- The fibres that are very small in length are called staple fibres while the long fibres are known as filaments.
- The fibres which become soft on heating are called thermoplastic fibres whereas the one which do not become soft are called non-thermoplastic fibres.
- Cotton fibre is obtained from a plant and is a cellulosic fibre.
- Wool and Silk are obtained from animals and are protein fibres.
- Nylon is the first man made fibre manufactured in a laboratory and it is a polyamide fibre.

### QUESTION BANK

#### Objective type questions

1. Nylon is a \_\_\_\_\_ fibre.
2. Cotton fibre is excellent for \_\_\_\_\_ season.
3. Silk is obtained from the \_\_\_\_\_ of silk worm.
4. The first manmade fibre is
  - (a) Nylon
  - (b) Rayon
  - (c) Polyester
  - (d) Silk
5. The waviness of wool is called
  - (a) Cracks
  - (b) Convulsions
  - (c) Crevices
  - (d) Crimp
6. Yarn is the smallest unit from which a fabric is made. (*True/False*)
7. Wool is a protein fibre. (*True/False*)
8. Fibres that are small in length are known as filaments. (*True/False*)
9. What is Sericulture?
10. Name the sources of wool fibre?
11. What is a fibre?
12. Name one regenerated fibre?

#### Short answer type questions

1. What are Thermoplastic fibres?
2. Give the end uses of nylon fibres.
3. What is static electricity?
4. What is the effect of heat on silk?
5. Explain the difference between regenerated and synthetic fibres.

#### Long answer type questions

1. Discuss the physical and chemical properties of silk fibre.
2. Discuss the different types of natural fibres.
3. What do you know about the sources and physical properties of nylon?
4. Discuss the physical and chemical properties of wool fibre.
5. What are Natural Fibres? Elaborate its types.

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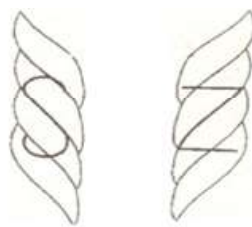
## FABRIC CONSTRUCTION AND FINISHES

Just look at the fabric of the dress you are wearing. It is made of the threads prepared from small fibres. You can check it by pulling a yarn from a piece of fabric. In this lesson you will get the knowledge about

- **Different types of yarns**
- **Various methods of fabric construction**
- **Fabrics finishes - purpose, classification and brief detail**

The variety of fabrics which you see on the shelves of cloth shops are because of variety of different yarns used to prepare them. Now we know that raw materials for weaving or knitting of the fabrics are yarns. A **yarn** is a continuous strand of textile fibres laid or twisted together by a process called spinning. Yarns may be made from any one or mixture of different natural and manmade textile fibres.

While fibres are converted into yarns by twisting them together, the direction of twist while spinning can either be in the clockwise direction or anticlockwise direction. When the direction of twist is in clockwise direction it is called “S” twist and when it is in anticlockwise direction, in that case it is called “Z” twist.



Direction of yarn twist

*Fig. 2.1 : Yarn twist*

Yarns used for weaving or knitting may be in the form of continuous filaments or in the form of short staple fibres twisted together. When the weaver selects a yarn to make a fabric, he looks for such properties as the thickness of the yarns, its evenness, its strength and elasticity. Each of these properties affect the quality of the fabric which is to be woven.

➤ **Type of yarns**

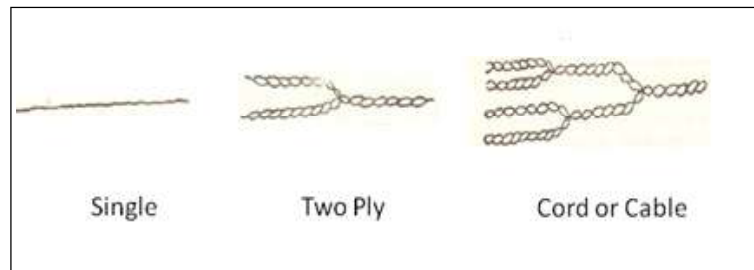
**Yarns can be classified into:**

- (A) Simple yarns
- (B) Novelty yarns.

**(A) Simple Yarns**

These are spun from any of the natural or manmade fibres. Their twist is regular throughout their length. No decorative elements are introduced into the yarns during spinning. These yarns may be single strand yarns of one continuous length of fibres or they may be multiple strands. According to number of strands present in the yarns simple yarns can be further divided into three subclasses:

- (i) **Single ply yarns:** These are simply a group of fibres twisted together to create a yarn. The yarns consist of one kind of fibre and are of one colour. This type of yarn is most commonly used in most of the fabrics for clothing and household use.
- (ii) **Ply yarns:** When two or more single yarns are twisted together, they form a ply yarn. If two singles are plied together, they are called two ply yarns, if four singles are used, these are called four ply yarns and so on.
- (iii) **Cord yarns:** When two or more ply yarns are twisted together a cord is formed. Cords are stronger than ply yarns which in turn are stronger than simple yarns.

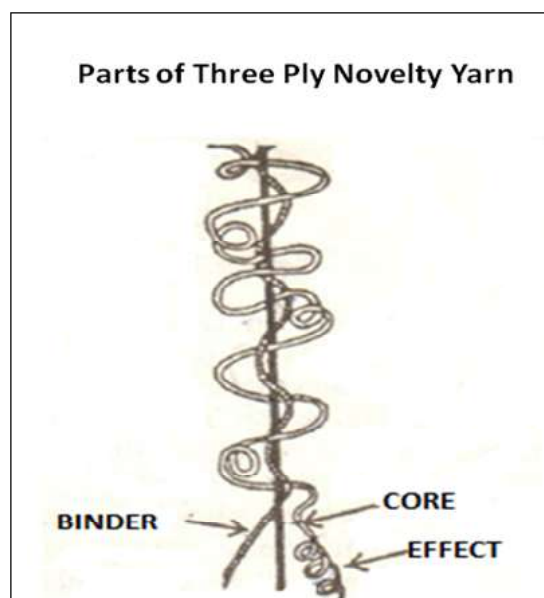


*Fig. 2.2 : Types of yarn*

**(B) Novelty yarns**

The construction of these yarns is of a complex nature and varies in many ways. While making these yarns decorative elements are added during the process of spinning which change the appearance of the yarns making them attractive and beautiful. These are fancy yarns with deliberate irregularities

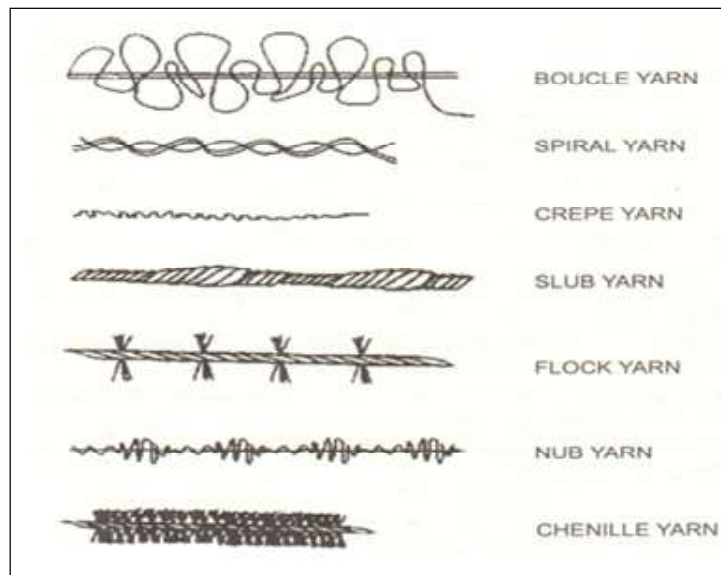
and often they are not strong and durable, rather they are decorative. Even a simple fabric made from such yarns will appear appealing because of the element of interest brought in by the unusual yarn structure. Fibres of different types, colours and different materials are combined in various ways to make these fancy yarns. Another variety is brought about in this kind of yarn is by varying the amount of twist. Most novelty yarns are ply yarns, comprising of a core yarn, an effect yarn and a binder yarn. The core yarn forms the base, the effect yarn creates the decorative effect and the binder yarn holds the whole structure together in any novelty yarn. Fabrics made of novelty yarns are generally not as durable as fabrics made from simple yarns. Novelty yarns are of following types:



*Fig. 2.3 : Parts of Novelty yarn*

- (i) **Boucle yarns:** They have large loops projecting from their surface at regular or irregular intervals. These yarns are of three ply construction. A base yarn, the effect yarn that forms the loops and a binder yarn that holds the loops in position.
- (ii) **Spiral yarns:** Two yarns of different colours and twist are taken and plied together so that the loosely twisted effect yarn is wound on the core yarn which has a high twist.
- (iii) **Crepe yarns:** Yarns which have been given very high twist and are characterized by a grainy hard feel.

- (iv) **Slub yarns:** In slub yarns, yarn is left untwisted or slackly twisted at irregular intervals in order to produce soft, bulky sections. The lack of twist in the bulky areas of slub yarns causes the yarns to be fluffier and softer at these points.
- (v) **Flock yarns:** Yarns to which small tufts of fibres are added at regular intervals and held in place by the twist of the base yarn .These tufts may be round or elongated. Flock yarns are used for fancy effects in suiting and dress materials.
- (vi) **Nub yarns:** A nub yarn is made on a special machine that permits the base yarn to be stationary while the effect yarn is wrapped around in the same place several times to build a large segment.
- (vii) **Chennile yarns:** These yarns resemble caterpillars, as tufts of fibres are inserted uniformly in the yarn twist. It has soft, fuzzy, springy surface. The yarn is like a velvet or pile effect. Chenile is generally made from cotton, wool, rayon, nylon or polyester and is made into fabrics that are soft.



*Fig. 2.4 : Different types of yarn*

➤ **Methods of fabric construction**

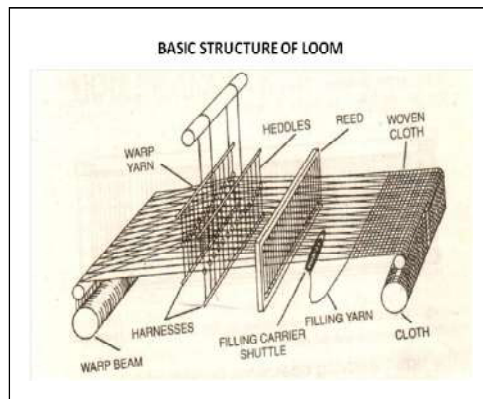
When you see the clothes you wear or fabric for curtains and bed sheets, have you noticed something different in them? Some fabrics are thick, others are thin, some are plain, others have self design and some are stiff and others are limp. These differences in fabrics are because of their construction. In this lesson you will learn about different methods of fabric construction.

**(A) Weaving**

The major method of fabric construction is weaving. Primitive people observed the interlacing of grasses and twigs in the nests of birds and thus discovered how they could make clothing for themselves. Weaving is the name given to the interlacing of two sets of yarns, warp and weft at right angles and the fabric thus formed is woven fabric. The warp yarns are those yarns which lie in the lengthwise direction of a fabric while it is being woven. The weft or filling yarns are those which run across the width of the fabric. The warp yarns are also known as ends and weft as picks.

The equipment on which fabric is woven is called a loom. A conventional shuttle loom will have following components:

- (i) **The warp beam:** The warp beam which is located at the back of the loom, is a large roller on which the warp yarns are wound. The number of yarns on the warp beam depends on the desired final width of the fabric.
- (ii) **The heddles:** The heddles are the wires or metal strips with an eye located in the centre through which the warp ends are threaded.
- (iii) **The harness:** Harness is a frame that holds the heddles in position. The purpose of harness is to lower or raise the warp yarns to create an opening or shed for passing the weft yarn.
- (iv) **The shuttle:** It moves back and forth in the shed passing the filling threads between the warp threads.
- (v) **The reed:** Reed is a comb like device and the openings between wires are called dents. Warp threads pass through the heddles and then through the dents. Reed protects the warp threads from entangling and beats and packs the filling threads into their proper position.
- (vi) **The cloth beam:** It is located at the front of the loom near the weaver and the woven fabric is wound on it.



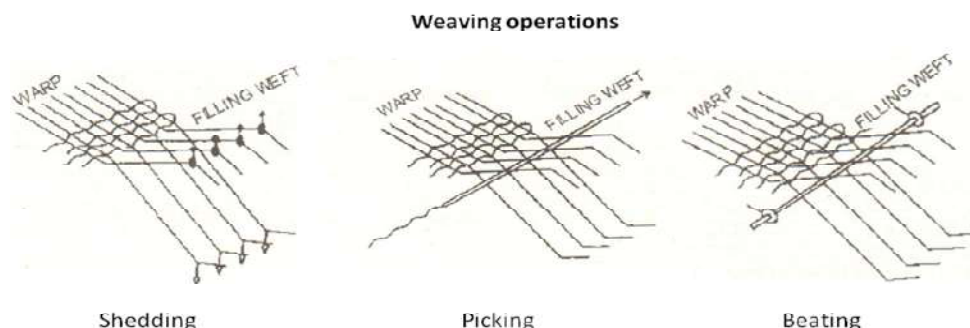
*Fig. 2.5 : Parts of loom*

## Weaving operations

Weaving process can be divided into primary and secondary operations.

### Primary operations are:

- (i) **Shedding**: Formation of shed by lifting of harness is called shedding. It produces a way through which the weft yarns are passed.
- (ii) **Picking**: It is the process of inserting the weft. The shuttle moves across the shed laying the pick or filling as it goes.
- (iii) **Beating**: A reed is used to pack the newly laid weft in the fabric. With each picking operation the reed automatically pushes or beats each filling yarn against the portion of fabric that has already been formed. This operation is therefore called beating up or battening.



*Fig. 2.6 : Weaving operations*



**Secondary operations are:**

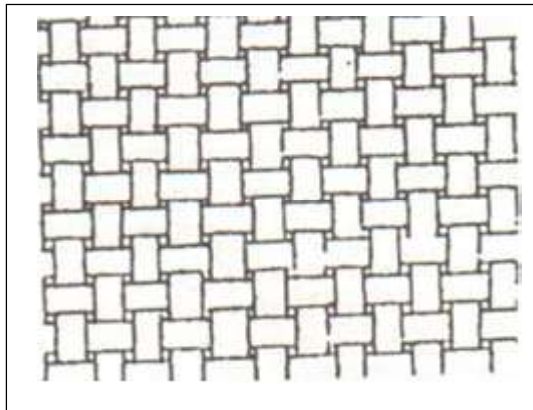
- (i) **Let-off:** Warp yarns are released from the warp beam so that weaving may be carried out.
- (ii) **Take-up:** Manufactured fabric is wound on the cloth beam.

**BASIC WEAVES**

A weave describes the pattern in which the warp and weft yarns are interlaced. The manner in which groups of warp yarns are raised by the harness for the insertion of filling yarn determines the pattern of weave. The three basic weaves in common use for majority of fabrics are plain, twill and satin with some variations.

**(a) Plain weave**

It is the simplest weave having the most basic interlacing. In this each weft yarn goes over a warp and then under a warp yarn. This is referred as 1/1 weave. It gives a firm and flat structure. The fabric looks alike from surface and back and is therefore reversible. Checks and stripes can be created by using different coloured yarns in warp or weft. The plain weave is comparatively inexpensive. Most of the durable fabrics are woven by this weave e.g. muslin, organdy, voile, taffeta, cheese cloth etc.

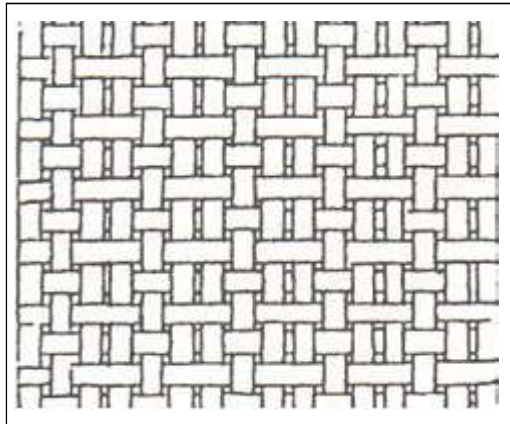


*Fig. 2.7 : Plain Weave*

**Variation of plain weave:**

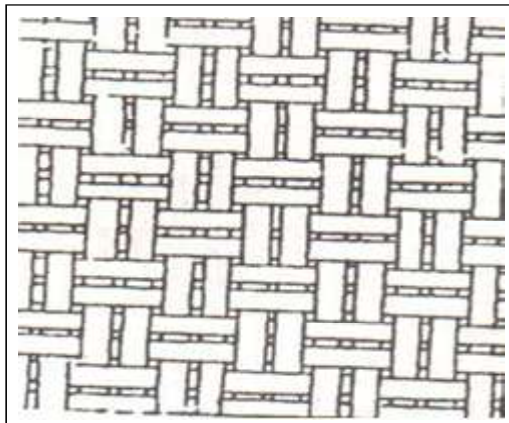
- (i) **Rib weave:** A rib weave is woven like plain weave but the difference is that either warp or weft yarn is thicker than the other which creates ridge like effect. Interesting and attractive fabrics can be prepared with rib variation. Ribbed effects are very commonly used but sometimes inferior or very short yarns are used in this weave. Usually fabrics made by rib weave may not be very durable because the yarns that produce ribs tend to pull away from adjacent

fine yarns. Yarn separation or slippage may occur in these fabrics when there is tension at seams. Most ribbed fabrics are medium weight e.g poplin and taffeta.



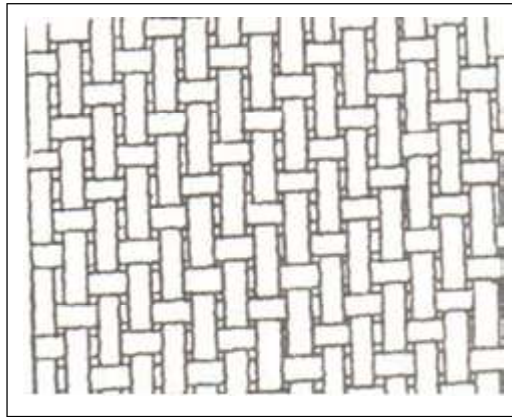
*Fig. 2.8 : Ribbed Weave*

- (ii) **Basket weave:** In this two or more yarns in warp and weft are treated as one and are interlaced in plain weave pattern. They are woven in the pattern of 2x2, 3x3, 4x4 instead of 1x1, which is in the plain weave. As the thickness and number of warp yarns will always be equal to the filling yarns, this weave provides a balance to the fabric. The fabrics woven with this weave are loose e.g matty. Yarns of different colours can be combined to develop more interesting weave patterns.



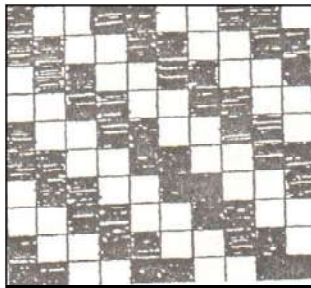
*Fig. 2.9 : Basket Weave*

- (b) **Twill weave:** A twill weave is characterized by diagonal lines on the surface or the back of the fabric e.g. denim. Twill weave fabrics have high strength due to compact weaving. These fabrics are durable and have good abrasion resistance. The direction of the twill can be varied to create interesting effects such as broken twill or herringbone etc. Twill fabrics are tightly woven and will not get dirty as quickly as the plain weave, though twills are more difficult to clean when they get soiled. Twill weaves are mostly used in men's suit and coat fabrics, where strong construction is essential e.g tweed, gabaradine, denim etc.

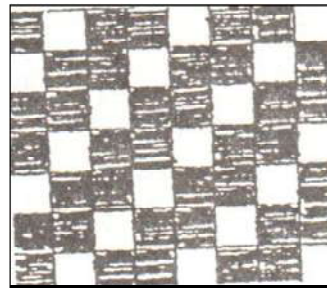


*Fig. 2.10 : Twill Weave*

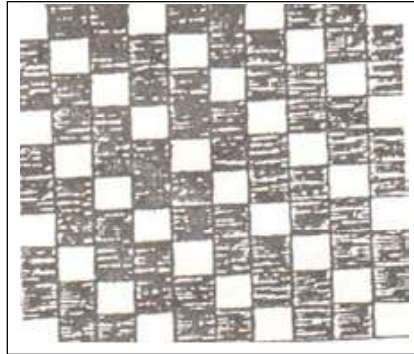
In the twill weave, the filling yarn interlaces more than one warp yarn but never more than four. On each successive line, the filling yarn moves the design one step to the right or to the left, thus forming the diagonal. When the direction of the fabric moves down to the lower right, it is called left hand twill. When the direction of the diagonal starts from the upper right hand side of the fabric and moves down the lower left it is called right hand twill.



*Fig.2.11 : Even left hand twill weave*

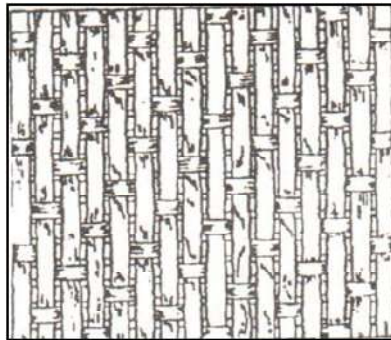


*Fig. 2.12 : Uneven right hand twill weave*

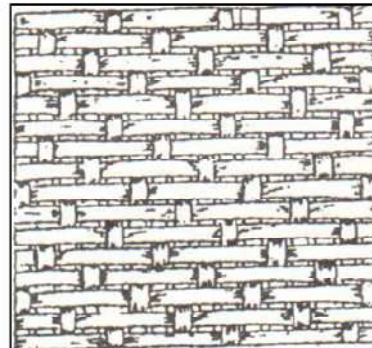


*Fig. 2.13 : Uneven left hand twill weave*

- (c) **Satin weave:** Satin weave fabrics are characterized by long floats on the surface. If more warp yarns are visible on the surface, it is called satin weave. The length of the warp yarn between filling yarn is known as float. Reflection of light on the floats gives satin fabrics a lustrous appearance. Satin weave is mostly used for silk fabrics, with warp predominating on the surface. Satin weave fabrics drape well. This weave has excellent luster and is more expensive but are comparatively less durable e.g. satin, crepe etc. It has more yarn slippage due to long floats.



*Fig. 2.14 : Satin weave*



*Fig. 2.15 : Sateen weave*

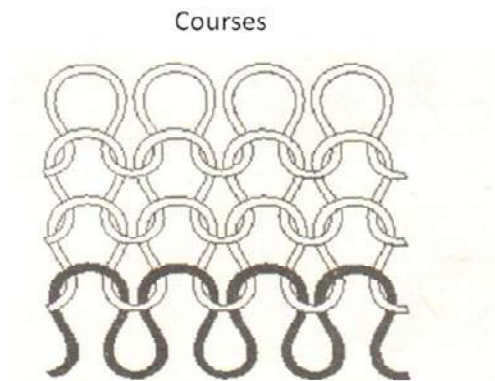
- (d) **Sateen weave:** Sateen weave is the reverse of the satin weave. When floats are long in the filling side, it is considered to be a variation of satin weave and is known as sateen weave. Since more filling yarns show on the surface, sateens are filling faced fabrics. This is commonly used in cotton fabrics. Sateen weave fabrics are smooth, lustrous and rich looking which can stand hard wear. This weave is also used to produce lustrous fabrics in silks and rayons. Apart from these, there are some decorative weaves which are formed by using various attachments on the loom. This includes dobby, jacquard, leno, pile etc.

## (B) Knitting

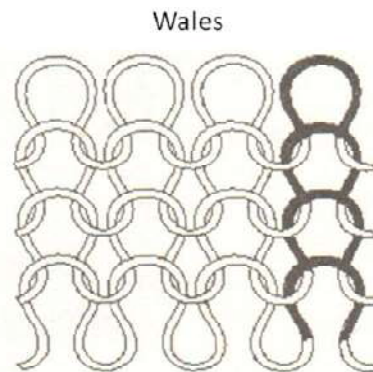
Knitting is the second most important method used in the fabric construction. The popularity of knitting has grown within recent years because of the increased knitting techniques. Consumers demand wrinkle resistant, stretchable, snug fitting fabrics particularly in sportswear and other casual wear apparels. Today the usage of knitted fabrics range from hosiery, under wears, sweaters, slacks, T-shirts, suits and coats to furnishings. The tendency for knits to be wrinkle resistance is a popular factor in their acceptance for many end uses.

Knitting is the construction of fabrics by forming the yarn into loops or it is the formation of fabrics by interlooping of yarns. A single yarn or several yarns may be used to form the loops. New loops are formed by passing the yarn through previously formed loops. Apart from using knitting needles, commercially knitted fabrics are constructed on knitting machines. The terms used to describe knits are:

- (i) **Wales:** The vertical rows of loops stitches in the knitted fabric are called wales.
- (ii) **Courses:** The horizontal rows of loops are known as courses.
- (iii) **Stitch:** Each single loop is called a stitch.
- (iv) **Count:** It is the total number of wales and courses per square inch of knitted fabric.
- (v) **Gauge:** Fineness of the fabric given by the number of stitches/ needles per unit width.



*Fig. 2.16*



*Fig. 2.17*

### Advantages

- (i) Knitted fabrics are stretchable.
- (ii) These fabrics fit well.
- (iii) Knitted fabrics also give warmth because of the insulative air pockets.
- (iv) These fabrics are porous and provide breathing comfort.
- (v) Knitted fabrics are very absorbent, light in weight and wrinkle resistant.

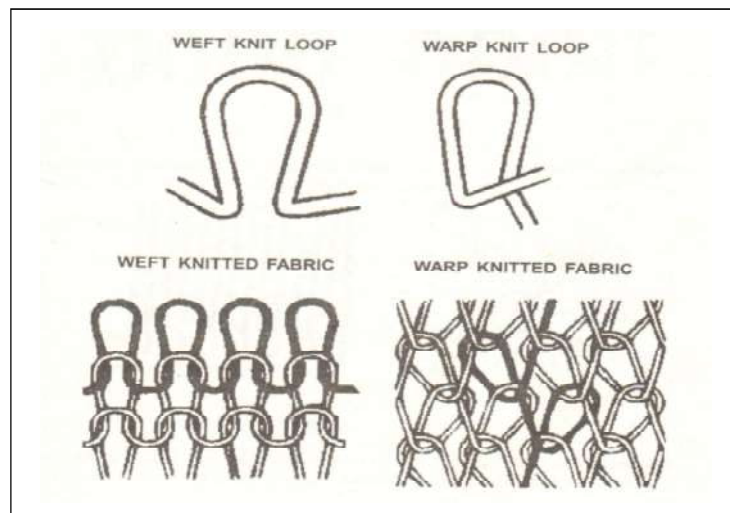
### Disadvantages

- (i) If one of the loops breaks, a hole is made which starts a run.
- (ii) Some knitted fabrics tend to loose their shape and snag.

### Types of knit:

Knitted fabrics can be classified into two types:

- (a) **Weft knit:** Those produced by weft knitting where one continuous yarn forms courses across the fabric.
- (b) **Warp knit:** Those produced by warp knitting, where a series of yarns forms wales in the lengthwise direction of the fabric.

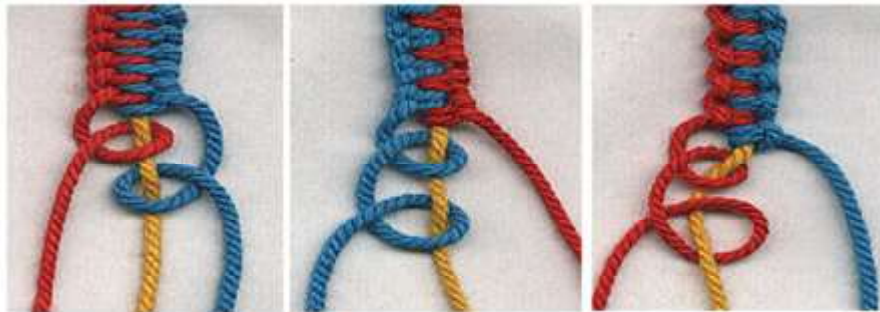


*Fig. 2.18 : Warp and Weft knit*



- (i) **Plain knit stitch:** The plain knit stitch is the basic form of knitting. The loops form vertical wales on the right side and courses on the back side of the fabric. This is also known as jersey stitch. Plain knit stitch is widely used for under wears, gloves, hosiery and sweaters.
  - (ii) **Purl stitch:** This is also known as link stitch. The fabric looks the same on both sides. It is used in infants and children's wear.
  - (iii) **Rib stitch:** Rib knit fabrics have alternating lengthwise rows of plain and purl stitches so that the face and back of the fabrics look alike. This stitch is used as waist bands of garments, under wears and socks.
- (C) **Knotting**

This method of fabric construction includes the formation of knots in different ways. Knotting is used for making decorative articles as well as utility items e.g macramé wall hanging, pot holders and bags etc. Various types of yarns and cords are used for the purpose. Knotting technique is also used in carpet manufacture, where a base is used and a thick woven synthetic yarn is used for knotting purpose to give the pile effect to the carpet.



*Fig. 2.19 : Knotting*

(D) **Felting**

The construction of fabric directly from the fibre is the oldest method of making cloth. In primitive time early man used wool fibres and then he observed that wool fibres stick to each other with the application of heat, moisture and pressure. In this way felt was discovered. Felt is a type of fabric in which there is no interlacing of yarns. Felt is produced when a layer of wool or fur is rubbed while it is in wet state in the presence of steam. The fibres thus entangle and interlock with each other and then pressure is also applied which results in

felting. This fabric has sufficient strength to withstand considerable pulling. Today, the manufacture of felt is highly mechanized. Wool fibres are cleaned, blended and carded. After carding two or more layers of fibres are arranged at right angles to one another. The number of layers depends on planned thickness of felt. The layers of carded fibres are passed through machines where they are trimmed and rolled. Moisture and heat are applied to these sheets by placing them in heavy plates.



*Fig. 2.20 : Felting*

Felt fabrics are used for apparel, home furnishing items, crafts and decorative articles. Flexible felts are used in skirts and jackets, table cloths table mats, pillow covers and rugs.

**(E) Bonding**

Bonded fibres are materials made of textile fibres held together by an applied bonding or adhesive agent or by fusing of thermoplastic fibres. Bonded fabrics are non woven fabrics. The steps of its formation are:

- (i) First of all the fibres are cleaned and separated into fluff.
- (ii) They are formed into a web considerably thicker than the final fabric.
- (iii) The web is flattened and bonded.
- (iv) It is dried and then finished.



*Fig. 2.21 : Bonding*



Most bonded fibres are sold in unfinished state. But sometimes dyeing and finishing is also done. Fabrics made by this process have been used for disposable products such as cleaning and polishing clothes, diapers, handkerchiefs, skirts, dresses, garment bags, industrial apparel, lampshades, napkins, mats, ribbons and upholstery backing.

**(F) Braiding**

Braid is a structure formed by intertwining three or more strands of flexible material such as textile fibres or wires. As compared to the process of weaving, where a wide sheet of cloth is prepared, a braid is usually long and narrow strand. In this each strand functions equally in overlapping mass of the others. The simplest possible braid is a flat, solid, three-strand structure. A basic braid is prepared by using three strings. Braids are commonly used to make ropes and decorative objects or for embellishing apparels. Complex braids of fibres are used to create hanging artwork



*Fig. 2.22 : Braiding*

**(G) Crocheting**

Crochet is a process of creating a fabric from yarn using a crochet hook. This hook is used to form loops and for drawing the yarn through previously formed loops. The word is derived from the French word *crochet* meaning hook. Hooks are made of materials such as metals, woods and plastic. Crochet differs from knitting that in this only one stitch is active at one time, and a single crochet hook is used instead of two knitting needles. Individual crocheter's work with yarn can be loose or in a tight manner. That's why these differences can lead to size changes in finished garments having same number of loops. An individual crocheter begins by making a rough sample and then checks and adjusts the tension of the loop or by changing to a smaller or larger hook.



*Fig. 2.23 : Crocheting*



*Fig. 2.24 : Crocheting hooks*

Crocheted fabric is begun by placing a slip-knot loop on the hook , pulling another loop through the first loop and repeating this process to create a chain of a suitable length. The chain is either turned and worked in rows, or joined to the beginning of the row with a slip stitch and worked in rounds. Rounds can also be created by working many stitches into a single loop. Stitches are made by pulling one or more loops through each loop of the chain. At the end only one loop left on the hook.

### ➤ **Finishes**

Fabrics, whether knitted or woven, as they come out of looms are called **grey goods**. This does not mean that the colour of the fabrics is grey, but it simply means any unfinished fabric. Fabrics at this stage are not at all attractive as they get dirty during the processes of spinning and weaving. In order to clean them, improve their appearance and prepare them for the market, they are given finishes. A **finish** is any treatment given to a fibre, yarn or fabric to improve its aesthetic value or performance, its feel, serviceability and durability. Finishes are given for following purposes:

### ➤ **Purposes of applying finishes**

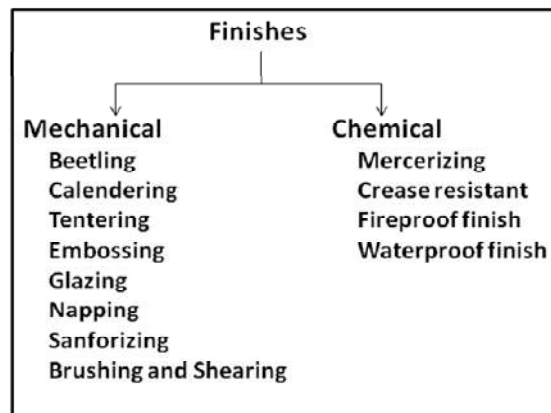
- (A) **To improve the appearance and enhance the attractiveness of the material:** When fabric comes from the weaver or knitter they are in rough condition, soiled and have stains. So they need cleaning and bleaching.
- (B) **To improve suitability and utility:** There are some fabrics which are not suitable for dresses because they are limp, lifeless and lack the qualities of draping. To impart these qualities in fabrics finishes are given to such fabrics.
- (C) **To produce variety:** Various finishes are given to bring variety in fabrics.
- (D) **To increase the weight or stiffness:** Starch or gum is given to increase the weight of the fabrics.
- (E) **To produce imitations:** Some finishing processes are used to change the original appearance of a fabric and thus produce imitations.

### ➤ **Classification of finishes**

Finishing processes are classified in several ways:

- (A) **On the basis of degree of performance:** Finishes are classified as **permanent and temporary**.
- (B) **On the basis of aesthetic and functional:** The **aesthetic** finishes affect the appearance of the fabric but the **functional** ones improve the performance for specific purposes.

- (C) **On the basis of textile processing:** Finishes are classified as mechanical and chemical. Mechanical finishes cause a physical change only. These are done by copper plates, roller brushes, perforated cylinders, metal frames or any type of mechanical equipment. Chemical finishes are those in which chemical reactions by the treatment of alkalies, acids, bleaches, starches and resins produce a permanent change in the fibre. The classification given on the basis of textile processing is explained as below.



*Fig. 2.25 : Classification of finishes*

### **Preliminary treatment**

Some preliminary treatments are essential for successful finishing. These are applied before the final finishes are given to the fabric that comes from the weaver. These treatments are bleaching, scouring, desizing, etc.

#### **(A) Bleaching**

Bleaching is the process that removes the coloured impurities in the fabric and thus produces whiteness in the fabric. This is required in case of white coloured fabrics. Bleaching is also used to strip dye off the fabrics which have been imperfectly dyed or need to be re dyed. Bleaches can be oxidizing or reducing. These are chosen very carefully depending upon the fibre content as the same bleach is not suitable for all fabrics. Chlorine base bleaches or reducing bleaches e.g. sodium hypochlorite is used for cellulosic fibres. Oxygen based or oxidizing bleaches e.g. hydrogen peroxide are used for protein fibres. Bleaches tend to damage the fabric, so it is done under controlled conditions of temperature and concentration. Finally through rinsing it is essential to remove all the traces of bleach.

**(B) Scouring**

The purpose of this process is to remove any sizing, dirt, oils, or other substances that may have adhered to the fabric while manufacturing of cloth. In this process, the fabric is boiled for a few hours in a dilute solution of caustic soda in large cylinders and after that fabric is given a thorough rinse in water and then neutralized. Sometimes certain fabrics are given markings during weaving. These markings are also removed by scouring. Cotton and manmade fibres can be cleaned by soap, detergent or other solutions containing soda. For scouring of wool and silk, non alkaline detergents are used as alkaline soaps are harmful for protein fibres.



*Fig. 2.26 : Scouring*

- (C) Desizing** is the removal of starch from the fabric which is usually applied at the yarn stage.
- (D) Degumming** is the removal of sericin, a gummy protein that coats the silk fibre. Removal of sericin improves the luster. Degumming can be done by boiling in water, soap solution or by using enzymes.

**Mechanical finishes**

Mechanical finishing processes are done by applying the pressure, moisture and heat.

- (a) Calendering :** In this finish cloth is processed or calendered by passing it between heated rollers. If the fabric needs a high polish the cloth is usually stiffened with sizing before it is calendered. The more the heat and pressure is applied, the greater the luster is produced. Cotton, rayon, linen and silk are passed through this process as a final finish.

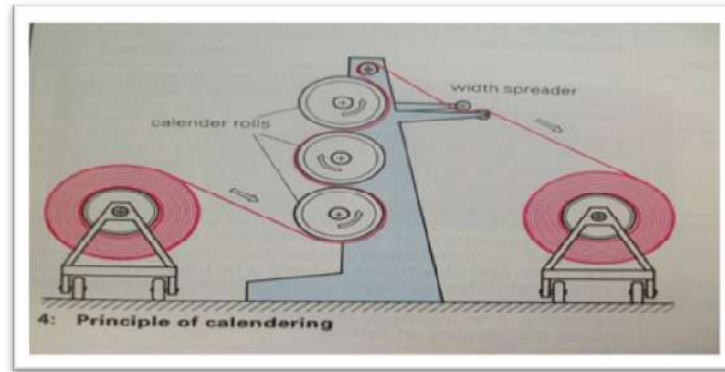


Fig. 2.27 : Calendering

**(b) Tentering**

The fabric after passing through the process of dyeing or wet finishing gets uneven at the edges. The process of tentering straightens out the edges and the weaves of the fabrics, and makes it even in the width. The fabric is passed through a frame. A chain on either side of the frame catches the selvages of the fabric and controls the pulling process for straightening out the material.

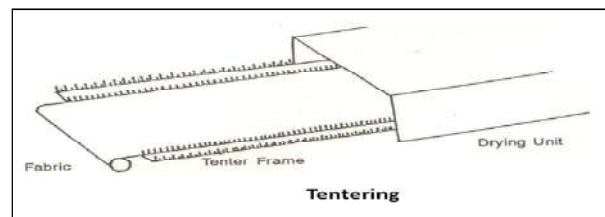


Fig. 2.28 : Tentering

**(c) Stiffening**

To overcome limpness of cottons and other fabrics they are stiffened to improve their body. This is done by sizing or starching. Stiffening is of two types;

- (i) Temporary
- (ii) Permanent

**(i) Temporary stiffening:** In this stiffening agents used are starch, gelatin, resin and some oils and waxes. Starch paste gives stiffness to the fabric, and wax will give it a gloss and luster. Most of cotton fabrics, such as sheeting, dress materials, organdies, and cambrics are stiffened by the above method.

**(ii) Permanent stiffening:** Permanent stiffening is given by some chemical processes that modify structure of the fibre e.g weighting of silk. Weighting is given to silk to improve its hand and drape.

(ii) **Chemical finishes**

These consist of a process of treating the fabrics with chemical reagents which change either the appearance or the intrinsic properties of the cloth.

- (a) **Mercerization:** This process gives a high degree of luster to cottons through the chemical action of caustic soda. The process consists of treating the yarn or the fabric with caustic soda solution, applied under tension to reduce the shrinkage and to increase luster. The process removes the twist of the fibre and thus causes the fibre to become smooth and produces silky effect. This finish is given to cottons which then absorb dyes more quickly.
- (b) **Water proof finish:** A water proof fabric is one in which water can not penetrate. To make the fabric water repellent waxes, metallic soaps, and some other agents are used.
- (c) **Crease resistant finish:** Crease resistant finish is applied to prevent fabric deformation by undesirable folds. Such finishes play significant role in the crease recovery of the fabric and are mostly given to cotton, linen and rayons.

**Activity**

- Take a survey of the nearby market and collect various types of novelty yarns and paste them in your practical note book.
- Collect swatches of fabrics having different weaves and paste them in your practical note book.
- Pull yarns from your old discarded sweaters and see the type of twist given to yarns. Also study the type of yarn.
- Take knitting needles and a ball of wool. Make small articles like a coaster or a mat. Finish the edges by making a row of chain with crocheting.
- Knitting and crocheting activities have good entrepreneurial avenues. Form a group of 3-4 girls and start making articles like mobile covers, mufflers, caps, vests or sweaters and by selling these articles a good amount of income can be earned.
- Take a Pan and boil water in it. Make a paste of arrowroot with few drops of water in it in a bowl. When water starts boiling, slow down the gas and pour the paste of starch of arrowroot to the boiling water. Stir it. Continue stirring till the thick consistency of mixture is formed. Your starch is ready.

Now take a muslin dupatta. Take a bucket and put 2-3 tablespoon of starch and a mug of water and shake it. Dip your dupatta in this starch for 10 minutes. Squeeze it and dry in sunlight. You will see after drying this dupatta will be stiffened. Now iron it. This will give a crisp, fresh and new look to it. Now you will understand why finishes are given to fabrics.

#### THINGS TO REMEMBER

- The raw materials for preparing fabrics are yarns.
- Twisting of fibres is done by a process known as spinning.
- Simple yarns are spun from any of the natural or manmade fibres.
- Two or more single yarns when twisted together, they form a ply yarn
- Unfinished fabrics as they come out of looms are called as grey goods.
- Finishes improve the appearance and enhance the attractiveness of the material.
- Yarns running parallel to length of the fabric are called warp yarns.
- The equipment on which fabric is woven is called a loom.
- The horizontal rows of loops in knitting are known as courses.

#### QUESTION BANK

##### Objective type questions

1. Single ply yarns consist of one kind of\_\_\_\_\_.
2. When two or more single yarns are twisted together, they form a \_\_\_\_\_ yarn.
3. Bleaching removes coloured impurities of the fabric and \_\_\_\_\_ the fabric.
4. The process of straightening the edges and width of a fabric is known as \_\_\_\_\_.

5. Weave in which one yarn is thicker than the other is known as \_\_\_\_\_.
6. Cord yarn is formed by twisting
  - (a) Two or more fibres
  - (c) Two or more single yarns
  - (b) Two or more ply yarns
  - (d) Two or more flock yarns
7. When a layer of wool or fur is rubbed in wet state, fabric produced is known as
 

(a) Felt fabric	(c) Bonded fabric
(b) Braided fabric	(d) All of these
8. Crocheting is a process of creating fabric from yarn using a hook made of
 

(a) Wood	(c) Plastic
(b) Metal	(d) All three
9. In calendering cloth is processed by passing it in between heated rollers. true/false
10. Desizing is removal of sericin. true/false
11. Felting is the latest method of making cloth. true/false
12. What is a yarn?
13. What are slub yarns?
14. Name the fabrics in which twill weave is used.
15. Define bonding.

#### **Short answer type questions**

1. What are ply yarns?
2. Differentiate between plain and twill weave.
3. Discuss various parts of a loom.
4. What are the weaving operations?
5. What are basic weft knitting stitches?

#### **Long answer type questions**

1. Define yarn and explain various types of yarns. Discuss with diagram.
2. Explain the various purposes to give finishes to fabrics.
3. Discuss various methods of fabric construction?
4. Explain various types of weaves.
5. Explain the methods of bleaching and scouring the fabrics.

\*\*\*\*\*



## DYEING AND PRINTING

How dull would life be if there was no colour around us? As nature has bestowed us with a wide array of colours all over, we are tempted to capture those colours with their vivid range of hues and tints, in the fabrics we use in our day to day life. **Dyeing** is the process used to enhance the appearance of a dull and colourless fabric by adding colour to the surface. It is interesting to note how much difference colour can bring about in our liking and disliking of a particular fabric. Visit any fabric market and your eyes are automatically directed to the splash of colours available on the fabrics creating interesting patterns and designs. The colours are judiciously used to create tempting prints which would be floral, abstract, geometrical, stylized or a combination of one or more types of designs. Ever wondered how interesting designs are created on a plain fabric with an array of colours. The cost effective method of adding colour and creating designs on a plain and dull fabric is commonly known as **printing**. In this chapter we will learn about

- **Purpose of dyeing and printing**
  - **Type of dyes**
  - **Plain dyeing**
  - **Tie and dye**
  - **Printing**
- **Purpose of dyeing and printing:**

Dyeing and printing are processes employed in the conversion of raw textile fibres into finished goods that add much to the appearance of textile fabrics.

Dyeing and printing are two major wet processing techniques for colouration of fabric. In the dyeing process, only one colour is produced but in the printing process, various types of coloured designs are produced on the fabric surface. Dyeing is done on grey fabric but printing could be done on both pre-treated fabric and coloured fabric.

**Dye :** A dye is a compound that can be fixed on a surface in a more or less permanent state, that evokes the visual sensation of a specific colour.

Dyes differ on the basis of their chemical nature and method of application. Dyes can be applied to the yarn or the fabric.

➤ **Type of dyes:**

There are two types of dyes:

(A) **Natural**                      (B) **Man-made**

(A) **Natural dyes:**

- (i) **Vegetable:** These are extracted from the leaves, flowers or fruits, roots, barks, stems, pods etc.
- (ii) **Animal dyes:** These are derived from dried bodies of dead animals like shell fish.
- (iii) **Mineral dyes:** Earlier it was made by placing scraps of iron in a barrel, covering them with vinegar and water and allowing the mixture to stand. The material was soaked in this mixture and then in a solution of wood ash. When it was exposed to air, it developed yellowish brown shade called the “iron buff”. Now it is produced by differed methods which give different shades from light yellowish brown to a deep reddish brown or rust.

(B) **Man-made dyes:**

These are also known as coaltar dyes. These dyes are fast to sunlight, water, perspiration and laundering. These are described as under:-

- (i) **Direct dyes:** Direct dyes are in expensive, easy to apply and are available in large range of colours. They are generally used on cellulose fabrics. These dyes are not affected by daylight and artificial lights and hence are suitable for dyeing home textiles like curtains and draperies. These can also be applied to animal as well as vegetable fabrics but are generally applied to cottons.
- (ii) **Basic dyes:** These are applied in a alkaline bath. They are excellent for silk and wool as they produce brilliant colours that are fairly permanent. The fabric is easy to launder as the colour is well retained. Basic dyes are not quite satisfactory as they are not fast to light and washing.
- (iii) **Acid dyes:** Nylon, polyester and protein fibres are better suited for acid dyes. These dyes are applied to fabrics that are not affected by the acids. Some of these dyes fade on exposure to light and may also get stained due to perspiration. Drycleaning of garments is better option for acid dyed fabric.
- (iv) **Vat dyes:** are used on fabrics which will receive hard wear, sunlight exposure and frequent washing. The dye is applied in large vats either to the fibre or to the fabric. These dyes are not soluble in water therefore must be chemically treated before they pass into solution. They are

applied in hot alkaline solution of a powerful reducing agent such as sodium hydrosulphite. This converts the dye into a colourless, but soluble form which is taken up by the fabric. These dyes are suitable for cellulose fibres. They can also be used on man made fibres under certain controlled conditions.

- (v) **Azoic dyes:** These are also called naphthol dyes. These are used in cold water baths. These produce fast and brilliant colours at low cost. They work better on cotton and hence are suitable for towels and sheets etc.
- (vi) **Disperse dyes:** As the name indicates, this dye is first dispersed into a solution and is applied to the fabric at high temperature and pressure. This method is often used for dyeing the polyester fibres blended with cotton and other cellulose fibres.

### ➤ **Plain Dyeing**

Plain dyeing can be effectively done at home as well as in the laboratory. Dyes are required for different fibres or fabrics because different fibres may react differently to the dye employed. Vegetable fibres do not react to the dyes well, but the dyes can be boiled in when dark fast colours are required. Animal fibres should not be boiled because it will remove the natural oil from the fabric and shrinkage also occurs.

#### **Dyeing Process**

##### **Preparation of articles/fabrics before dyeing:**

- (a) The article or the new fabric has to be free from wrinkles, grease, starch and stains. It should be washed properly to remove all the impurities.
- (b) Stitched articles should be handled separately. Buttons, zippers, ribbons, lining should be removed. The hem of the garment must be unstitched. Even the pleats and gathers should be opened out, as it is difficult to get a satisfactory result.
- (c) If the fabric is already dyed, the colour must be bleached first so as to dye evenly.

##### **Essential equipment:**

- (i) A big vessel/basin to hold the dye and cloth
- (ii) Enamel/plastic bowls,
- (iii) Wooden spoons
- (iv) Piece of muslin
- (v) Rubber gloves and apron
- (vi) Hot or cold water
- (vii) Dye (as per requirement)

### Preparation of the dye bath:

The size of the utensil should be big enough to hold and stir the cloth and the dye solution. Mix two or more dyes in a right proportion in a glass tumbler until the required shade is obtained. It is best to use a dye powder in a muslin pouch and then shake this pouch in cold or hot water as per the requirement, until all the powder is dissolved. The exact proportion of water and dye should be according to the recommended instructions. The colour should be tested on small piece of the material to be dyed. Matching of the colour should be done only when the dyed piece has dried because it appears darker when it is wet.

The dye bath is prepared with great care. The weight of fabric to be dyed is recorded. The amount of dye required varies for light, medium and dark shades. The dye and the other materials required for 100 grams of fabric are given below:

Shade to be dyed	Dye	Washing soda	Common salt
Pale light	1g	1g	5g
Medium	2.5g	2g	10g
Dark	More than 2.5g	3g	20g

The amount of water required for dyeing is directly related to the construction of the fabric. It is known as the Material Liquor Ratio (MLR). Cambric and poplin are compact fabrics and have MLR of 1:20. Hence, the amount of water required to dye 100g of poplin will be 2 litres. Loosely woven fabrics like muslin have MLR of 1:25 to 1:30.

### Steps followed in dyeing:

- (A) **Soaking:** The fabric or article to be dyed must be soaked in plain water for 10-15 minutes before putting in a dye bath.
- (B) **Boiling of water:** Water is boiled in a container. Flame of the gas is reduced to maintain to the temperature about 40-45°C.
- (C) **Dyeing:** Washing soda and dye stuff is added to the water. Wet fabric is then put in the dye solution and constantly stirred. Use a pair of wooden spoons or tongs for stirring to keep the fabric up and down, so that the dye can penetrate evenly. Heat the dye solution slowly to simmering point for 5-7 minutes at 40-45°C and then temperature is raised upto 60-65°C for 10-15 minutes. Further raise the temperature to 80-85° for five minutes and keep stirring at the recommended temperature for as long as per the direction. Depth of colour in fabrics can be retained by adding one teaspoon of salt in 2 litres for vegetable fibres and one teaspoon of acetic acid or vinegar in 2 litres for animal fibres.

- (D) **Rinsing:** After dyeing, the fabric must be cooled and rinsed thoroughly in wash water several times until no trace of loose dye comes out.
- (E) **Drying:** Squeeze out the moisture gently but never wring the dyed fabric. Dry in shade and finish the fabric as per the requirement.
- (F) **Finishing**
- (i) Cover the ironing table with a dark coloured old sheet so that it may remain protected from the stains if the colour bleeds.
  - (ii) When the fabric is still damp, iron it properly. Do not sprinkle water on a dried fabric instead keep a damp muslin cloth over it to give a neat and smooth finish to the fabric.
  - (iii) Iron the fabric from the wrong side when ironing for the first time.
  - (iv) Iron should be moderately hot because too hot iron may change the colour of dyed article.

**Common defects in dyeing:**

- (A) **Spots and streaks:** When the dye is not completely dissolved, then spots and streaks occur on the fabric. Other reasons are due to soil spots, some traces of grease on the fabric or in the container.
- (B) **Patchy dyeing:** It forms due to following reasons:
- (i) When the fabric is not evenly damp and well opened out before immersion into the dye bath.
  - (ii) Due to uneven stripping of the original colour.
  - (iii) When stirring of the dye bath is not done accurately.
  - (iv) Insufficient dye bath as compared to the fabric size or weight.
  - (v) Dirty place for drying the dyed fabric.

➤ **Tie and Dye**

Tie and dye was developed in the regions of Gujarat and Rajasthan of India. This art is known as *bandhani* which has designs like circles and squares representing human figures, dancing dolls, the elephant, the horse, the tiger, the lion, the tree and the birds like peacocks and parrots. The use of certain colours like red, yellow and white is considered auspicious and symbolic of happiness and joy.

**Type of fabrics suitable for tie and dye are:**

- |                  |             |
|------------------|-------------|
| • Muslin         | • Lawn      |
| • Cambric        | • Georgette |
| • <i>Khaddar</i> | • Poplin    |
| • Silk           | • Nylon     |
| • Rayon          |             |

### Tools and equipments required for tie and dye are:

- |                                                    |                             |
|----------------------------------------------------|-----------------------------|
| i. Bowls                                           | ii. Basins                  |
| iii. Gas & stove                                   | iv. Wooden spoon or a stick |
| v. Teaspoon                                        | vi. Scissors                |
| vii. Thread for tying                              | viii. Cauldron              |
| ix. Knitting needle or pointed pencil or hair pin. |                             |
| x. Common salt                                     | xi. Dye/Colourxii.          |
| xii. Hand sewing needle.                           |                             |

### Different methods of tying the fabric:

There are different methods of tie-dyeing the fabric through which various interesting designs can be created. The fabric is tied to prevent the penetration of dye in that portion. Some of these methods are given below:

- (A) **Marbling** : gives variegated and irregular marble like effect. The material is gathered and turned into a ball. It is then tied in all directions until it becomes a hard solid mass. This ball is dyed in colour. Thin textured material like muslin gives better result. This procedure can be repeated in case more than one colour is required.



Fig. 1: Marbling

- (B) **Binding**: Designs like stripes, bands, circles etc can be obtained with this method. Put pencil dots to mark the circles, pick up the cloth at each dot and bind it with a thread. The fabric is gathered straight or diagonally and then tied at small and equal intervals to get *Laheria* or striped effect.

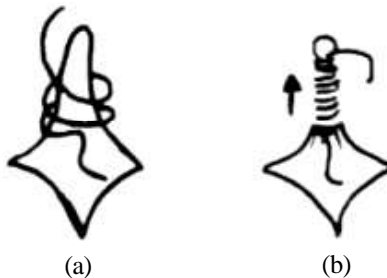


Fig. 3.2: Tying and binding of thread

- (C) **Knotting**: It is one of the easiest and quickest way of producing the design. Generally fine textured fabrics like muslin, silk, georgette are ideal for this method. It can be done in different ways eg. length of the cloth can be tied into knots. The cloth is folded in squares, rectangles and triangles and then knotted at the corners to create interesting patterns.



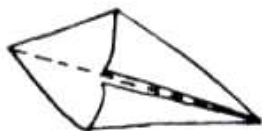
Fig.3.3 : Knotting

- (D) **Twisting and coiling:** This design is more definite in nature than marbling and it is evenly spaced over the cloth. Keep right side of cloth facing out and bring selvages together to form a tube like structure. Twist the tube till it gives a coiled effect. Tie around it with a thread or a string. For this, a textured fabric like muslin can be used for making *dupattas*.



*Fig.3.4 : Twisting and coiling*

- (E) **Folding:** The fabric is folded twice thrice or multiple folds like a paper fan. Then it is tied in different ways. The outermost layer can take up the dye more easily than the inner portions of the fabric. The combination of light and dark colours in design looks elegant.

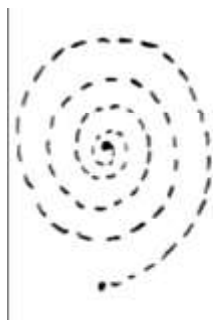


*Fig. 3.5 : Folding*



*Fig. 3.6 : Tying after folding*

- (F) **Sewing:** Intricate designs like flowers, leaves, squares, triangles and other bold motifs can be obtained by tacking the design with a strong thread (4 or 6 strands) and is pulled to draw the fabric together. The dye will only penetrate in puffed area whereas the stitched portion will resist the dye. With this technique, the shape of the bold designs will be produced almost accurately.



*Fig. 3.7 : Tacking a design*



*Fig.3.8 : Pulling the thread used for tacking*

- (G) **Clump tying:** Various objects like pulses, rice, pencil, wooden stick, pebbles, coins etc. are tied in fabric to give variegated effects in the design. Planning of the design is marked beforehand by using pencil marks.



*Fig. 3.9 : Clump tying*

- (H) **Ruching:** This pattern is obtained by rolling the cloth tightly around a rope like structure. It is then gathered towards centre and tied tightly.



*Fig. 3.10 : Ruching*

### **Dyeing process:**

The process of tie and dye include preparing the cloth as in plain dyeing. Immerse tied material in cold water and soak it for ½ an hour. Dyeing method is same as in plain dyeing.

### **Method of obtaining two more colours:**

- (i) Only few dots are tied before dyeing in the first colour and a few more before the second colour. In this way parts of the dyed fabrics are protected and dyed again. The lightest colour must be dyed first and darkest in the last. To obtain three colours, keep in mind:
  - (a) After tying some dots of white immerse fabric in yellow colour. Then tie for yellow dots. Now immerse in red. This will result in yellow and white dots with red background.
  - (b) White, yellow, green and blue: First tie dots on white fabric then dye it in yellow. Tie a few more areas to preserve yellow dots to obtain a final background in blue colour. It will give green colour in combination with blue and yellow colour.

### **Opening threads of tied portion:**

- (i) If a continuous thread is used for tying dots, then material should be pulled up cross wise to open tied parts. Fastened portion opens out easily when pulled.
- (ii) If thread is cut after each dot or portion being tied, each knot should be removed or snipped separately. While snipping thread, care must be taken to see that material is not caught and cut.



➤ **Printing**

Printing can be defined as the application of designs to the fabric. It produces more colourful effect on the fabric and is done by hand and machine. The dyes used in printing are the same as those used for dyeing but these are used in the form of pastes. If mordants are required, the fabrics are treated with mordant solution before being printed.

**Types of printing:**

Printing can be done by hand and machine

- (A) **Hand printing:** is done at home for making home textiles articles. It can be opted for the development of skills in Batik, Block, Stencil, Spray printing to start an enterprise at household levels.
- (B) **Machine printing:** is used for industrial purpose. It requires lot of space and infrastructure which is high in cost. It also requires skilled and semiskilled labour.

(A) **Hand printing**

(i) **Batik**

This is another form of resist dyeing which produces patterns like those in prints. The difference between tie and dye and batik lies in the fact that former is by tying the spots and latter by applying wax on the cloth.



*Fig. 3.11 : Batik design*

**Type of fabrics used for batik work:** The fabrics used for batik work should be smooth in their texture in order to get a better result. Silk is the most suitable and easiest fabric of all to use. Other fabric options are cotton and organdy but heavy, coarse and thick textured are not much suitable.

**Preparation of the fabric:** Fabric should be thoroughly washed and ironed before use. Cottons having starch should be boiled in soapy water to remove the starch because penetration of dye is restricted. The fabric must be ironed well before tracing of design. The design is traced on fabric with a sharp pencil.

**Application of wax on fabric:** Bees wax is the best wax to apply for batik work. Brushes of various sizes are required to apply hot wax on the design traced on the fabric.

The wax prevents the dye from penetrating into the design. The wax dries immediately when it is applied on the fabric and the finished material is left with a white pattern on a coloured background. The paraffin wax is sometimes added deliberately along with bees wax to form a cracked spider-like lines of colour where the dye penetrates these cracks. This wax is highly inflammable, therefore care must be taken while heating in a vessel over a flame. It is advisable to use a hot plate or place an iron *tawa* under it so that the vessel does not come in direct contact with heat and fire can be avoided.

While applying hot liquid wax with a brush, use a wooden frame to stretch the frame. After use, these brushes should be rinsed well in petrol immediately to keep them clean and free from wax. Then washed in warm water and soap, and thoroughly rinsed and dried.

**Proportion of wax:**

- (i) Bees wax - 400 grams
  - (ii) Resin - 100 grams (in powder form)
- (Resin is required only if less cracks are desired as per the design).

**Dyeing process**

Boil a bucketful of water and allow it to cool to make the water soft.

**Proportion of dye:**

- (i) Fabric - 1 metre
- (ii) Naphthol dye AT or BS =  $\frac{1}{2}$  teaspoon
- (iii) Salt (Red B salt) = 1 teaspoon
- (iv) Caustic soda = 5 to 6 small grains
- (v) Common salt = 2 tablespoons
- (vi) Water = 1 bucket of soft water

**Method of dyeing:**

After applying wax on the traced fabric as per the design, soak this fabric in cold water. Be sure that the water is not hot as it will melt the wax. Prepare the dye

solution by taking (Naphthol  $\frac{1}{2}$  teaspoon) the dye. Add 3 to 4 teaspoons of soft water to it and make a smooth paste. Add one cup of soft water and boil to for ten minutes. Now add caustic soda, the solution will be clear. Remove from fire and allow it to cool. Take  $\frac{1}{4}$  bucket of soft water and add the above solution to it and stir it thoroughly. Take out the waxed fabric from water, press it well to remove excess water. Dip it in the dye bath. Stir the fabric up and down so that the dye may spread all over evenly. Leave the fabric in the dye bath for  $\frac{1}{2}$  an hour. Now prepare the salt solution i.e. one teaspoon of red B salt. Make a fine paste with a few drops of soft water. Add  $\frac{1}{4}$  bucket of soft water to this paste and two table spoons of common salt. Stir it thoroughly.

Remove the fabric from the Naphthol solution and dip it on the salt solution. Stir the fabric up and down so that the dye may spread evenly to the waxed fabric. After  $\frac{1}{2}$  an hour, rinse the fabric in cold water to remove the extra dye. Now open it out and dry in shade.

#### **Removal of wax from the fabric:**

Press it with a hot iron to remove wax by keeping newspaper/blotting paper beneath and on top of the dyed fabric. Very thick wax may be removed by working with a blunt knife. Then the fabric is washed in white petrol. Be cautious while working with petrol at home as it is highly inflammable. This should be done in the open air. Then the fabric is ironed well to get a smooth finish.

#### **(ii) Block printing**

It is one of the oldest methods of local application of colour. The blocks are usually made of teak wood of 8-12 cm in thickness. These blocks are prepared by carving away the background and leaving the design portions raised. If a small design is desired, the figure is cut on a single block, in case of a large one i.e. background is cutout so that design is raised. For producing multi colour prints, blocks at the rate of one block for each coloured part need to be cut. One block can print only one colour. If a design consists of more than one colour, then separate blocks are made for each colour. Great skill is required to stamp each portion of design accurately so that design is clear in outline, with uniform depth of colour. Besides, readymade wooden blocks are available in market but these can be made easily at home by cutting vegetables like *bhindi* onion, potato, cauliflower, bell pepper, lotus stem etc.



*Fig. 3.12 : Block printing with readymade and home made blocks and prepared articles*

### **Preparation of printing paste:**

The printing paste consists of pigment, binder and fixing agent. The dye stuff and the fabric to be printed must be compatible. The fixer enables the dyestuff to fix into the fabric. This prevents bleeding of the dye. Pigment printing is an easy method to enhance the beauty of the fabric. Usually, 4-5 tablespoons of binder is taken which is easily available in the market. Add 3-4 drops of pigment. Finally, make a paste by adding one teaspoon of mix the paste vigorously for good results.

### **Printing process**

It is costly and a slow process, where uniform pressure is needed to transfer the colour. The process of printing begins with laying the fabric flat on a firm table which is to be covered with a protective padding. Care must be taken to attach the fabric firmly to the table so that its movement during printing is prevented. Dip the block in colour paste which is spreaded on a thin sheet of sponge. Only the raised areas of block should pick up the colour. The block is then pressed onto the fabric surface with sufficient pressure to force the colour into the fabric. Leave the fabric till it is dry.

#### **(iii) Stencil printing**

The original stencils were cut from their sheets of paper coated with oil, wax or varnish. It can be made from X-ray sheets or plastic transparency sheet. The readymade stencils are also available in the market. The fabric is securely attached to the table. The printing paste is prepared and applied in the hollow portions of stencil with the help of a sponge piece or a cotton ball and bud. It is a slow process but can be used very effectively on stretch and knitted fabrics as well without any fear of distortion.



*Fig. 3.13 : Making stencil by cutting the design on X-ray sheet*

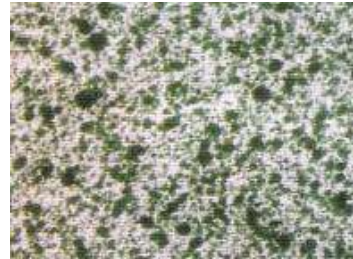


*Fig. 3.14 : Stencil printing*

(iv) **Spray printing**



*Fig. 3.15 : Design of spray printing*



*Fig. 3.16 : Spray printing*

This technique can also be used in combination with wide cut stencils, so that design evolves only in parts where it is cut according to the requirement and it gives a novel effect on fabric. This method requires very little dye. Stencils are used to obtain design, while spraying in the open spaces. Fabric paint or printing paste is used for this. Non conventional techniques may also be applied with spray printing with a tooth brush on the fabric sprayed with the help of an index finger. Hand gloves should be worn before spray printing is done so as to save your skin.

(B) **Machine printing**

(i) **Direct roller printing:** The design is engraved on copper rollers. The colour is fed on to this roller. The cloth is then passed around this roller. After this, the cloth is passed through drying and steaming chamber to fix the colour. Now-a-days, sixteen rollers are used at a time and the fabric can be printed with sixteen different colours. The designs on these rollers have to be intricately carved and precisely matched to give the desired effect. It can print thousands of meters of fabric in an hour. Therefore this printing is fast and economical.



*Fig. 3.17 : Direct roller printing*

(ii) **Discharge printing:** This type of machine printing is usually favoured for fabrics with dark backgrounds. The fabric is first dyed. A discharge paste which contains chemicals to remove the colour is then printed on the fabric. To produce a white pattern on a ground colour, the fabric is first dyed with the ground shade like brown. Then it is printed with a paste



*Fig. 3.18 : Discharge printing*

containing chemical capable of bleaching the brown colour to a white. Such a paste is called discharge paste. If the colour is desired in the discharge area, dyes which are not formed by the discharging materials are mixed Fig. with the printing solution. The fabric is then steamed to develop the printed designs either as white or coloured areas. These prints are found on cottons and rayons and in some patterned silk with dark backgrounds. The chemical that discharge the dye tends to weaken the fabric in the area of the design.

- (iii) **Resist printing:** This is just the opposite of discharge printing. In this, a resist paste is printed first on the white fabric, and the fabric is then piece dyed. The dye penetrates into areas covered by resist paste.



Fig.3.20 : Pigment Printing

- (iv) **Pigment printing:** It involves the use of pigments which are not the true dye stuff. These pigments have no affinity for fibres. These pigments are made into a colouring paste using different chemicals. These are then applied on the fabric along with a synthetic resin that acts as a binder. The fabric is heated as the pigment paste is applied. This has excellent colour fastness to light. This process of pigment printing is also called the Ari dye process.

Difference between Dyeing and Printing	
Dyeing	Printing
1. In a dyeing process, dyes are applied on both sides of the fabric.	Dyes are applied on only one side of the fabric.
2. Only one dye is used	One or more dyes are used.
3. Dyes are applied on the whole fabric equally	Dyes are applied on the fabric localized to produce desired design.
4. Yarn and fabric are dyed by dyeing.	Printing is generally done on fabric.
5. Precise temperature is required for dyeing	It is not necessary to maintain precise temperature.
6. Thickener is not required for dyeing.	Thickener is must for printing paste preparation.
7. The density of dye solution is less than the density of printing paste.	The density of printing paste is higher than dye solution density.
8. Large amount of water is required for dyeing.	Small amount of water is required for printing.
9. Steaming is not required after dyeing.	Steaming is must for printing to fix the dyes or pigments on the surface of he fabric.
10. Dyeing is cheaper than printing	Printing is costly than dyeing.
11. Dyed fabrics are soft	Printed fabrics are hard and harsh.

### Dye and salt combinations of Naphthol dye.

Colour	Dye	+	Salt
Yellow	Naphthol AT	+	Yellow G.C. Salt
Orange	Naphthol AT	+	Red B salt
Brown	Naphthol AT	+	Blue B salt
Magenta	Naphthol AT	+	Black K salt
Red	Naphthol BS	+	R Salt
Maroon	Naphthol BS	+	G P Salt
Royal purple	Naphthol BS	+	Violet B salt
Navy blue	Naphthol BS	+	Blue B salt
Navy blue	Naphthol AGGR	+	Black K salt
Dark bluish green	Naphthol AGGR	+	Blue B salt
Dark purple	Naphthol AGGR	+	Violet B salt
Orange	Naphthol AGGR	+	Orange G C salt
Light violet	Naphthol AS	+	G P Salt
Bottle green	Naphthol AS	+	Blue B B Salt
Bottle green	Naphthol AS	+	Black K Salt

### Activity

- Redye an old garment using two different colours and create a pattern using batik technique.
- Prepare a set of two cushion covers by creating designs using four different methods of tie and dye.
- Prepare blocks from vegetables like bhindi, onion, potato etc. to print one cushion cover or a pillow cover using fabric paint.
- Using an old X-ray sheet, create a stencil for border motif. Use this motif on an old turban to print a refreshing dupatta.
- Redesign an old T-shirt by creating design using spray printing technique.
- Using an old X-ray sheet, create a stencil for border motif. Use this motif on an old turban to print a refreshing dupatta.

### THINGS TO REMEMBER

- Dyeing can be done at the yarn or at the fabric state.
- Dyes are applied on both sides of the fabric, but in printing, dyes are applied on only one side of the fabric.
- Animal fibres should not be boiled because it will remove the natural oil from the fabric and will also shrink.
- Fabric has to be free from starch and stains before dyeing.
- Dyed fabrics are soft to touch as compared to printed fabrics.
- Fabrics are desized before applying wax, otherwise penetration of dye will be restricted.
- Paraffin wax is added deliberately along with beeswax to form a cracked effect after dyeing.
- Intricate designs are created when a fabric is tacked and the thread is pulled.
- Fabrics are desized before applying wax, otherwise penetration of dye will be restricted.

### QUESTION BANK

#### Objective type questions

1. Dyeing and printing are two major \_\_\_\_\_ processing techniques.
2. \_\_\_\_\_ is not required for dyeing.
3. Small amount of water is required for \_\_\_\_\_.
4. Dyeing is \_\_\_\_\_ than printing.
5. \_\_\_\_\_ dyeing occurs when the fabric is not evenly damp.
6. Tie and dye was developed in:  
(a) Punjab (c) Haryana  
(b) Rajasthan (d) Bengal
7. Type of fabrics suitable for tie and dye are:  
(a) Cotton (c) Muslin  
(b) Silk (d) All of these



8. Common defects found in dyeing are:
  - (a) Patchy dyeing
  - (b) Bleeding colours
  - (c) Spots and streaks
  - (d) All of these
9. Direct dyes are expensive, easy to apply and are available in limited range of colours. true/false
10. Twill weave is characterised by diagonal lines on the surface of fabrics. true/false
11. Paraffin wax is used to creat cracked effects in batik. true/false
12. Pigment printing is an example of hand printing. true/false
13. What are different tools required for spray printing?
14. Which fabrics are suitable for *batik*?
15. Which cotton fabrics are used for tie and dye?
16. What are different sources of natural dyes.

#### **Short answer type questions**

1. What is the difference between direct dyes and basic dyes?
2. What is the use of thickener in printing?
3. How handling of stitched articles is done before dyeing?
4. What is twisting and coiling method of tie & dye?
5. How wax is removed after dyeing the fabric?

#### **Long answer type questions**

1. What is the purpose of dyeing?
2. Explain the preparations to be done before dyeing a fabric.
3. Why home-dyeing is economical?
4. Write down four different methods of tying for tie and dye.
5. Explain the process of *batik* work in detail.

\*\*\*\*\*

## ELEMENTS AND PRINCIPLES OF DESIGN

We all are quite familiar about art from the earlier classes. Some people have the idea that art includes only painting but it is not true. Dress is and has always been an important art. Every piece of clothing is the personal art expression of people who creates it. In addition to satisfying a specific need for the body protection or decoration, our clothing is an important aspect of our personality so a lot of thought is required while designing it. This chapter deals with important

- **Elements of design**
- **Principles of design**

### ➤ **Elements of design**

The elements of design are the building blocks used to create a piece of clothing. They can be thought of as the components which make a design. The elements of design are very important in clothing both for designing and selection of garments. Every individual has his or her own figure and personality that need to be carefully kept in mind while designing a dress for him or her so that the dress can hide the figure defects. The various elements of design for any clothing are as follows:

- |             |                    |
|-------------|--------------------|
| (A) Line    | (B) Form and shape |
| (C) Colour  | (D) Pattern        |
| (E) Texture |                    |

#### **(A) Line:**

An element of art used to define shape, contours, and outlines is called a line. Line is the most basic element of design in a dress because it divides the area into shape and space. These are the structural lines at the sides, at the hem, at neck and at sleeves. It provides the visual dimensions of length and width created by constructional details of garment such as seams, openings, pleats, gathers, tucks, top stitching, trims and other forms of structural or surface decoration. Line communicates emotion and states of mind through its character and direction. There are four types of lines: Horizontal, Vertical, Diagonal and Curved.

- (i) **Horizontal** lines runs crosswise i.e. parallel to the ground and suggests a feeling of rest. They give the effect of width and hence reduced length. Such lines make the figure look wide and short. Narrow horizontal stripes give a slender look while wide horizontal lines give

a broader look. In a dress, horizontal lines can be created through ruffles, tucks and use of lace.



*Fig. 4.1 : Horizontal Lines in a dress*

- (ii) **Vertical** lines are perpendicular to the ground and make the eye move in upward and downward direction. They communicate a feeling of loftiness and spirituality. Erect lines seem to extend upwards toward the sky and therefore give an illusion of height and slimness. The vertical effect created by these lines depend upon their width, boldness and the distance between adjacent lines. Bold and wide vertical lines give a broader effect as compared to the narrow and close lines. In a dress, vertical lines are created by knife pleats or tucks.



*Fig. 4.2 : Vertical Lines in a dress*

- (iii) **Diagonal** lines are the slanting lines moving from one side of the garment to the other. They suggest a feeling of movement or direction and may give a slendering or broadening effect to the figure depending upon their angle. Vertically diagonal lines give a lengthening effect creating an illusion of tall and slim figure whereas horizontally diagonal lines create a broadening effect.



*Fig. 4.3 : Diagonal Lines in a dress*

- (iv) **Curved** lines suggest comfort, safety, familiarity and relaxation. They recall the curves of the human body, and therefore have a pleasing quality. When these lines are used in yokes, collars and necklines, they give an effect of roundness and tend to broaden the figure. Curved lines look very graceful when used in a diagonal direction.



*Fig. 4.4 : Curved Lines in a dress*

**(B) Form and Shape**

**Shapes** are made by connecting lines. The outline of the garment is called its silhouette or its shape. The structural lines such as neckline, waistline, hemline, cuffs etc. are the important lines that give shape to the garment. Shapes are two dimensional made of length and width and appear flat whereas a form is three dimensional having length, width and depth. In clothing, the silhouette of the garment as seen on a flat surface is its shape but when the garment is worn on a figure, it becomes a form. Generally there are two types of shapes in garments- rectangular and triangular. Rectangular silhouette is formed when the width of the garment is more or less equal to the shoulder and hem line and the length is more than the width while in a triangular silhouette, the garment looks wider at one side and narrow at the other.



*Fig. 4.5 : Rectangular and Triangular silhouette in garments*

**(C) Colour:**

Colour is a very important design element in clothing. Colour in dress has two roles to play. One in the harmonious use of right colours in the dress itself and the other in harmony of the colour of the dress and the complexion of the wearer. Colour has three properties. The first is hue, which is the name of the colors. The primary hues are yellow, red, and blue. Secondary colors are made by mixing two primary colours. Tertiary colors are comfortable, refreshing, calm.

S.No	Name of the Colour	Psychological effects
1	Blue	Cool, peaceful, quiet
2	Yellow	Warm, sunny, joyous
3	Red	Vivid, warm, stimulating
4	Green	Comfortable, refreshing, calm
5	Violet	Rich, royal, dignified
6	Orange	Lively, warm, joyous
7	White	Purity, peace, innocence
8	Black	Formal, dignified, warm
9	Grey	Dull, dignified, serene

#### Classes of colour:

- (i) **Primary colours** are the three colors from which other colors may be made e.g. yellow, red and blue.
- (ii) **Secondary or binary colours** are made by the combining equal amount of two primary colors e.g. orange, green and violet.  
 Red + Yellow = Orange  
 Blue + Yellow = Green  
 Red + Blue = Violet
- (iii) **Tertiary or intermediate colours** are made when a primary and a secondary color are mixed together e.g. yellow - green, yellow – orange, red – orange, red – violet, Blue – green, blue – violet. There are several gradations of intermediate colors, depending upon the amount of each color used.



Fig. 4.6 : Primary , Secondary and Tertiary Colours

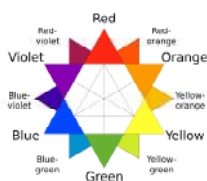


Fig. 4.7 : Colour Wheel

Some factors which affect the right selection of colours for garments for a wearer are light, season, texture, size, age, sex, figure and complexion of the wearer and also the occasion on which the garment is to be worn.

**(D) Pattern**

Pattern is related to surface decoration of a garment that can be created by duplicating size, shape, position, value, and color. Patterns are usually stronger when combining two or more repeating elements. Most often people associate size, shape, and position of visual objects with pattern, but value and color are also strong pattern tools. Pattern uses the prints and patterns in planned or random repetitions to enhance design surface. Pattern increases visual excitement by enriching surface interest. Some important effects created by pattern are as follows:

S.No	Type of Pattern	Effect on wearer
1	Small pattern	Gives a tall and slim look.
2	Medium sized pattern	Looks good on majority of figures types.
3	Bold pattern pattern	Gives broader and shorter look.
4	Circular pattern	Gives broader look
5	Geometrical pattern	Gives broader and larger look.
6	All over pattern	Gives taller and broader look.



*Fig. 4.8 : Different types of patterns in a dress creates different effects*

### (E) Texture

Texture refers to the surface quality of the fabric. It is associated with the way the things look or feel. Different fabrics have different textures like rough, smooth, silky, shiny, fuzzy and so on. Some fabrics feel just as they appear; this is called real or tactile texture. Some things look like they are rough but are actually smooth. Texture that is created to look like something it is not, is called visual or implied texture. Actual texture is the real thing where as visual or implied texture can be created. **The variation in texture is due to the type of yarn, its spinning, weaving and finishing. Texture adds variety and interest in the garment. Textures help in creating** create visual interest or a focal point in a design, to create contrast within a design and to help visually balance a design. Textures create different effects for different figure types.

S.No	Type of Texture	Effect on wearer
1	Shiny and glossy	Reveals the true figure and increases the apparent size of the wearer.
2	Dull	Conceals the true silhouette.
3	Stiff or crisp	Hang away from natural contours of the body



**Shiny**



**Dull**



**Crisp**

*Fig. 4.9 : Different fabric textures*

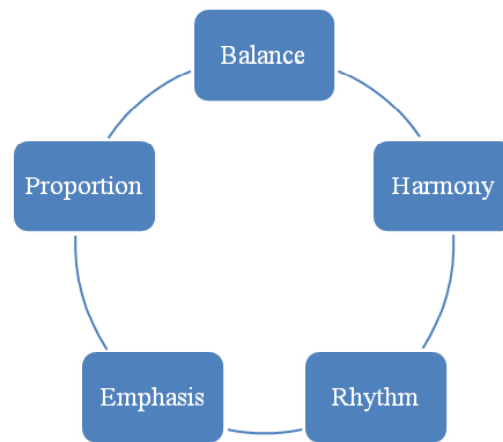
#### Activity

Draw sketch of four bodice in same shape in your notebook. Fill first bodice with vertical lines, second with horizontal lines third with diagonal lines and the fourth one with curved lines. Now observe the different effects that has been created by each bodice. The first bodice looks bigger, the second one more broader, the third one suggests movement while the fourth bodice looks very creative. Even when the bodice were same, the different effects are because of different lines used in them. Repeat the same activity with different colours and textures also.



➤ **Principles of design**

The principles of design are the recipe for a good clothing. The principles combine the element to create an aesthetic placement of things that will produce a good design. The principles of design are the ways of right use of the elements of art. In dress designing, there are two kinds of design- structural and decorative. Structural design is formed by the arrangement of line, form, shape and pattern of the dress while the decorative designs are formed by surface enrichment of structural design. In a garment, the structural design consists of silhouette, neckline, waistline, tucks, darts etc. whereas the decorative design consists of frills, buttons, collars, cuffs etc.



*Fig. 4.10 : Principles of a good design*

The principles of design are as follows:

- (A) **Balance**
- (B) **Harmony**
- (C) **Rhythm**
- (D) **Emphasis**
- (E) **Proportion**

(A) **Balance**

Balance is a psychological sense of equilibrium. It is a feeling of visual equality in shape, form, value, colour, etc. Balance can be symmetrical (formal) or

asymmetrical (informal). In simple words, balance means creating equal areas of attraction in all parts of the garment. Informal balance is more difficult to create than formal balance. Informal balance in a garment is achieved by placing the elements of design in such a way that a heavy design on one side is balanced by cluster of light weight designs on the other. Formal balance can be easily achieved by using identical elements on both sides of an imaginary center line dividing the garment into two equal halves.



*Fig. 4.11 : Formal and informal balance in dress*

**(B) Harmony**

Harmony in visual design means all parts of the visual image relate to and complement each other. It keeps the various pieces of a garment together. Patterns or shapes can help to achieve harmony. Harmony is produced when there is unity among the various elements of design in a dress. However, care should be taken for not having too much similarity otherwise it leads to a monotonous effect. So, the design also needs contrast or variety for interest. It brings life to the design. Contrast is produced when lines move in opposite direction, when curved line is used with straight line, circle is used with triangle or black is used with white etc.



*Fig.: 4.12 : Harmony in a dress achieved by use of same pattern*

**(C) Rhythm**

Rhythm is the repetition of the elements- colours, shapes, lines, values, forms and texture in regular or irregular intervals to make the design interesting. Repetition helps in connecting various parts of the garment and creating an area of attention. Rhythm is the flow depicted in a dress which helps to direct eye movement.. Rhythm in design exists when the parts of design have been arranged so that your eye moves easily from one part of the design to another part. When rhythm is present, there will be illusion of motion created in the design. Good rhythm is visible when all the lines of an garment work well together.



*Fig: 4.13 : Rhythm in a dress achieved through repetition*

**(D) Emphasis**

Emphasis is used to create dominance and focus in design. It means creating a centre of interest in a garment. Designers can emphasize color, value, shapes, or other art elements to achieve dominance. Various kinds of contrast can be used to emphasize a center of interest. Usually the most elegant part of the garment is emphasized. Emphasis involves the dominance or concentration of interest in the selected area of design with other center of interest subordinated. Emphasis as such, should not be placed at an area that one wishes to minimize attention drawn on. Designers often create emphasis partially through the careful arrangement of line, texture and colours. It is also called as focal point.

Some methods of laying emphasis in garments could be by:

- (i) Grouping of design units, e.g. rows of tucks, stripes, embroidery, trims or decoration on contrasting background.
- (ii) Using contrast of hues
- (iii) By leading lines
- (iv) Repeating details such as tucks, gathers, button etc.
- (v) Unusual shapes and textures
- (vi) Use of plain background space

When creating emphasis, care must be taken not to overemphasize the focus point otherwise the beauty of other parts of the garment would become subdued.



*Fig. 4.14 : Emphasis on the neckline in the dress*

**(E) Proportion or Scale**

It refers to the relative size and scale of the various elements in a design. It is a principle of relationship between one part of the design and the other part or whole parts to the whole design. It is the relationship of height, width and depth in a garment. The inner structural lines or the arrangement of different colours and textures divide the garment into different spaces or areas. These spaces affect the height and size of the figure hence their relationship within a design and to the whole garment should be proportionate. The ratio of 1:1 and 1:2 generally seems uninteresting whereas 2:3, 3:5, 5:8, 8:13 are considered more pleasing proportions. One needs to consider the proportion of texture, proportion of fabric design and proportion of entire costume with the size of the wearer. The placement of structural lines determines whether the garment is proportionate or not. The waistline should never divide the garment length into two equal parts but should be so placed that the upper part is shorter than the lower part. Similarly, the yoke line should divide the bodice at about one third of the bodice length. The length of the dress can alter the apparent height of the person hence it should be proportionate to the person's height. The visual width should also be proportionate to the length of the garment as well as the figure of the wearer.



*Fig. 4.15 : Right and Wrong proportion in a dress*

### ACTIVITY

Divide the class into five groups and give them an activity to make different clothing sketches using one principle of art. This will not only help them to understand the different principles but also show them the different effects created by each principle.

### THINGS TO REMEMBER

- The elements of art are the essential components for making a good clothing or dress .
- The different elements of art are line, form, colour, pattern and texture.
- Lines can be horizontal, vertical, diagonal or curved.
- Shapes are made by connecting lines.
- Colour is an important element of design. It has three properties- hue, value and intensity.
- Pattern is related to surface decoration of a garment while texture indicates the surface quality of the fabric.
- The principles of design combine the various elements of art to create an aesthetic placement of design in a dress.
- Various principles of design are balance, harmony, rhythm, emphasis and proportion.
- Balance is a feeling of visual equality in shape, form, value and colour of a dress. Balance can be even or uneven.
- Harmony in a dress means that all parts of the design relate to and complement each other.
- Rhythm is the repetition of elements of design in regular or irregular intervals to make the dress interesting.
- Emphasis is used to create dominance and focus in a dress. The best part of the dress is emphasized.
- Proportion refers to the relative size and scale of various elements in a design.

## QUESTION BANK

### Objective type questions :

1. The relationship of height, width and depth in a garment is called\_\_\_\_\_
2. \_\_\_\_\_ is produced when lines move in opposite direction.
3. \_\_\_\_\_ is a psychological sense of equilibrium.
4. \_\_\_\_\_ texture conceals the true silhouette.
5. \_\_\_\_\_ lines are parallel to the ground.
6. \_\_\_\_\_ lines suggest comfort, safety, familiarity and relaxation.
 

(a) Horizontal lines	(c) Diagonal lines
(b) Vertical lines	(d) Curved lines
7. \_\_\_\_\_ is not a garment shape
 

(a) Globular	(c) Tubular
(b) Rectangular	(d) Straight
8. The name of the colour is called
 

(a) Intensity	(c) Hue
(b) Value	(d) None of these
9. Rythm refer to the relative size and scale of various elements in a design. true/false
10. Lines can be even or uneven. true/false
11. Emphasis used to create dominance an focus on a specific part of a dress. true/false
12. Define horizontal lines.
13. What is a rectangular silhouette?
14. What is proportion?
15. What is rhythm?

### Short answer type questions:

1. What is the difference between formal and informal balance?
2. How you can achieve emphasis in garments?
3. Give two examples of good proportion in a dress.

4. What is texture? Name few common textures.
5. What do you know about vertical lines?

**Long answer type questions:**

1. Discuss any five elements of design.
2. What do you know about principles of design? Discuss in detail.
3. What do you know about lines? Elaborate its different types.
4. Discuss colour as an important element of design. Also give the psychological effects created by it.
5. What is balance? Discuss its types.



## SELECTION, CARE, MAINTENANCE AND STORAGE OF CLOTHES

Do you know that clothes speak about the wearer's personality? It is good to select clothes carefully. Proper dress helps in building self confidence which is essential for our personality. Clothes are an indication of our interests and social status. Clothes reflect our culture, place, state and occupation of the wearer. In this chapter, you will learn about

- **Selection of Apparel**
- **Check point for buying readymade garments.**
- **Care, maintenance and storage of clothes**
- **Factors influencing selection of apparel**

The various factors that affect the selection of clothing are age, season, income, occasion and fashion.

- (A) **Age:** While selecting clothes one has to think about the age group of the person. In each family there are members of various age groups e.g children, adults, and elderly persons. The choice of colour, design and pattern is chosen according to the individual's choice and need of the age group to which he belongs. For small children nursery prints in soft/light colours should be chosen and for school going children buy the dresses according to their peer group. When the children enter late childhood stage, girls like to wear feminine colours such as pink, red etc. while the boys like masculine colours as blue, brown and black.
- (B) **Season:** Some fabrics are suitable for winter e.g. synthetics, silks and wool. Cotton and blends of cotton are good for summer. Similarly there are cool and warm colours. Blue and green are cool colours and are chosen for summer whereas red, yellow and orange are warm colours, suitable for winter. You wear cottons in summers and woollens in winters. As you know woollen clothes are expensive and proper care is needed for their maintenance.
- (C) **Income:** Amount of money affects the selection of clothing. Children belonging to high-income group can spend more money on clothing as compared to low income. They can spend more money on fashionable garments rather than on durable clothes. Parents belonging to low-income group prefer durable clothes rather than delicate ones. So the preference of the clothing changes according to the income of the family.

- (D) **Occasion:** Selection of clothes also changes according to occasion. For daily wear or informal wear, durable dresses with simple designs can be chosen but for formal wear fabric dresses with new styles are chosen.
- (E) **Fashion:** Clothes of recent fashion look beautiful but trendy clothes look odd when they go out of fashion. Some clothes should be brought according to current fashion while others should be simple. Extremes of fashion should be avoided.

### **Clothing Selection for the Family**

Clothing selection for the family presents a greater challenge today as the kind and variety of clothes available today seem almost limitless.

#### **(A) Clothing for Expectant Mother**

Keeping attractive with smart maternity clothes and careful grooming helps the expectant mother maintain her morale at a high level.

- (i) Ready-made maternity garments are also available these days with style and comfort but clothes can also be got stitched like nighties, kurtas and tops.
- (ii) Knitted garments made from easy-stretch yarns of cotton are very satisfactory.

#### **(B) Clothing for the Infant (up to 9 months)**

- (i) Infant's clothes should be selected on the basis of comfort and ease of care. Garments which need no ironing, easy to put on the baby are considered most suitable.
- (ii) Baby clothes should be soft and should not be irritating.
- (iii) These should provide ventilation to allow any moisture to evaporate.
- (iv) Clothing should be simple and well made. Fancy trimmings require irritate the baby.
- (v) Knitted garments are easy to put on the infant.
- (vi) Garments should be with front openings to make dressing simpler.
- (vii) Flat fasteners are more comfortable; there should not be any drawstring near necklines.
- (viii) The most suitable fiber for infant's clothing is cotton, because it is soft, and can be kept hygienically safe by washing in hot or boiling water.

#### **(C) Clothing for Creeper (9 months to 1 year)**

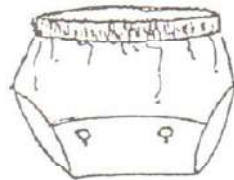
When the baby starts to creep, more clothes are required for safety's sake.

- (i) Overalls especially those with snaps in the crotch are good to change diaper easily.

- (ii) Reinforcement in the knees of pant legs provides durability.
- (iii) Garments of firmly woven or knitted fabrics are good for rough wear.
- (iv) In cold weather a snowsuit, mittens, and hood or caps will be necessary.
- (v) During the creeping age soft-soled shoes may be worn.
- (vi) Training pants are often worn when toilet training begins until toilet training is accomplished.
- (vii) Creepers are physically active, so their clothes should be able to absorb sweat.

#### **D. Clothing for the Toddler (1-2 years)**

- (i) The toddler needs clothing that provides maximum freedom for all the activities.
- (ii) Sun suits or overalls are preferred, especially if they have wide shoulder straps that are long enough for adjustments as the child grows.
- (iii) Toddlers commonly wear one-piece garments with zipper openings at the legs or crotch.
- (iv) Toddlers' clothes should be made of soft and washable material.



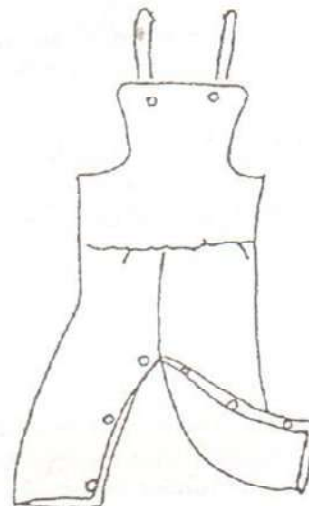
**Snappers**

*Fig. 5.1 : Snappers*



**Training pants**

*Fig. 5.2 : Training pants*



**Overalls**

*Fig. 5.3 : Overalls*

**(E) Clothing for the Preschool child (2-4 years)**

Following points should be considered while selecting clothes for pre schoolers:

**(a) Allowance for growth**

Growth is most rapid during the preschool years. Buying clothes with growth features will enable a garment to be worn over a longer period of time.

- (i) Skirts and dresses with deep hems or tucks at the bottom need to be provided.
- (ii) Dresses and trousers with tucks at the waistline to lengthen the upper part of dress or to lengthen the crotch.
- (iii) Overalls with adjustable long straps and deep hems are included.
- (iv) Dresses with indefinite waistline or no waistline and deep hems to be added.
- (v) Stretch fabrics and Two-piece garments are suitable cloth for pre-school.

**(b) Self help features**

A self-help garment is one, which the child can put on and take off with little or no help from an adult. Here are some points to remember in selecting garments that will encourage independence in dressing.

**Self help garments for the preschoolers**

- (i) Simple styles are easier to handle than complicated ones.
- (ii) Openings are easier to handle than back openings.
- (iii) Large buttons or fasteners are easier to manage than small ones.
- (iv) Large armholes, sleeves and necks make garments easier to put on.
- (v) The back of a garment should be easily distinguishable from the front e.g any patch or embroidery at the front will help him to identify the difference between front and back.
- (vi) Collarless dresses, blouses, and shirts are easier to handle than those with collars.
- (vii) Avoid belts, as these get are difficult for the child to tie them.

**(F) Clothing for School Going Children (5 to 11 years)**

Clothing needs for school children vary than preschoolers. This period is a very active one physically and in social development. This is an age of belonging to a group and what the group wears is very important. Children want to gain acceptance from their peers. They become self-conscious and feeling of inferiority may result if they wear an odd look garment.

**(G) Clothing for Pre-adolescents (12 years 15 years)**

There is rapid growth, as the body is changing and taking on adult characteristics. The peer group and its approval becomes even more important. They give more importance to becomingness, beauty and conformity as compared to durability and comfort.

**(H) Clothing for Adolescents (15 to 20 years)**

Adolescents become more conscious of grooming and personal appearance, particularly they seek attention and admiration by others. They want fashionable and expensive garments. Comfort and serviceability are sacrificed for the sake of style and fashion. They seek acceptance and approval of the peer group. They select clothing as means of demonstrating their conformity. They are greatly interested in clothing and concerned with their physical appearance. Clothing becomes a means of expressing personality.

**(I) Clothing for Adults**

- (i) For Men :** An adult is mature enough to select the clothes on the basis of income, status, occupation, age, sex, occasion, fashion etc. A well dressed person not only appears capable to others but feels more confident himself. A man's wardrobe includes clothes for business, sports and formal wear. So a man's profession, the community, the climate and his outside interests determine the type of clothes.
- (ii) For Woman :** Extent of a woman's wardrobe depends on her family income, her social activities and profession.
- (iii) House wife:** The average housewife generally needs more clothes for housework. So her dresses should be comfortable and washable. Her wardrobe consists of several type of costumes, sarees, suits etc. for several occasions.
- (iv) The career wife:** Today there are increasing number of working women, thus their requirement for clothes is according to nature of their job. Since, she meets the public in her job, she must have a greater variety of clothes and accessories than house wife. Her clothing should be of such type which can be easily maintained and should be durable.

**(J) Clothes for Elderly**

People in their old age have special clothing needs. The clothing concerns of the aged are both physical and psychological. Clothing for elderly should be easy to put on and take off. Fasteners should be minimum and openings should be large. Stretchable clothes are more convenient to dress and undress due to stiffening of muscles at this age. Clothing should be well made and durable that requires minimum care should be selected for elderly people. Lightweight clothing is less tiring and more comfortable.

➤ **Check points before buying readymade 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 and order stitching and wait till the dress is ready. To overcome this problem we have an alternative method of buying a readymade dress. Almost for all occasions family members prefer to buy their garments from the leading readymade shops. They want to dress up neatly and are conscious to exhibit their status.

Readymade garments are available for all age groups in different sizes with varied colour combinations, latest styles, textures, trims and also suitable for different occasions and seasons. These garments are sold by leading wholesale dealers, branded showrooms, retail outlets, and boutiques. The price of the garment is left purely on the person's choice as these are available in all price ranges. If the person wants to buy with minimum cost, definitely they can buy within their budget. 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. Others who wish to go for branded garments should bear the cost because of the quality.



*Fig. 5.4 : Readymade garments*

The consumer wants to buy a quality product at affordable prices that fulfills his requirements but sometimes unsuitable garments are purchased due to ignorance of the consumer. The consumer can select desirable clothes at reasonable rate only if he considers all few aspects judiciously before buying them. Therefore, following points should be kept in mind while purchasing ready-made garments:

**(A) Quality of fabric**

Following points should be kept in mind while selecting the quality of fabric:

- (i) Check the quality of weave. Clothes with compact weave are more durable than those with loose weave.

- (ii) Check the type of material used in lace, piping, and lining of the garment. It should match the main cloth.
- (iii) Drape of a cloth is also an important aspect in clothing selection. Garments look more attractive if these have good fall.

**(B) Colour**

- (i) The colour used in the cloth of the garments should be fast.
- (ii) If more than one piece is used in a dress, it must be ensured that colour of all of them is fast. Other decorative accessories like laces, piping, etc. should also be of fast colours.
- (iii) The shade of dress and its suitability on you should be checked in the natural light.
- (iv) Ensure the colour of required dress before purchasing.

**(C) Workmanship**

The beauty and durability of the cloth depends on the efficient workmanship. For judging workmanship following things should be seen:

- (i) Design
- (ii) Placket and Fasteners
- (iii) Cutting
- (iv) Stitching and Hemmings

**(D) Design**

Choose pleasing designs in dresses that have good placements of all design components. If the dress is of one colour then it is not a problem but if it is printed or striped or with checks then the readymade garments should be looked for:

- (i) The print should be uniform.
- (ii) Stripes and checks are stitched at proper angles.
- (iii) In fuzzy cloth one must ensure that the piles are in the same direction.

**(E) Cutting**

The cloth will fit well if the cutting is proper.

- (i) Length of all pieces should be along the selvedge and width should be along the weft. If the length of the cloth is cut widthwise the garment would be uncomfortable and will not last long.
- (ii) Sometimes, if the main grain of cloth is not proper, the cloth will not give proper fitting and will hang unevenly.

**(F) Seams**

- (i) Seams of readymade garments should be durable. Stitches should be small, equal, and straight.

- (ii) The thread used in stitching should be of fast colour and matching to the colour of the cloth.
- (iii) Seams should be durable and there should be enough margins in the seams.

**(G) Hemmings**

Hemming is done on various ends of the dress like at the ends of sleeves, around the neckline and at the bottom of the dress.

- (i) Stitches of hemming should be at short intervals and equal in size.
- (ii) The ends of hemming should be properly locked .
- (iii) The thread used for hemming should be of fast colour and matching with the fabric.
- (iv) The folding for hemming should have some margin for alterations.

**(H) Plackets**

- (i) The strip on which buttons are fixed is called placket. While buying a garment, ensure that the placket is straight, buttons or hooks are at equal distance and in working order.
- (ii) The placket should be large enough for easy to put on and take off the dress.
- (iii) Buttons should be properly fixed. The thread used should not be visible from front surface. If one button is lost, it is difficult to find a matching one. For this, the manufacturers fix one or two extra buttons.
- (iv) Zip is also commonly used nowadays. Before buying clothes, ensure that the zip is of good quality.
- (v) The durability and colour of buttons, hooks and zip should be in accordance to the dress.

**(I) Trimming and decorations**

To make the design of a dress more appealing, laces, frills, piping's, etc. are used. Embroidery and patch work is also done. Ensure following things about trimmings:

- (i) Trimmings should be of fast colours.
- (ii) The frills or gathers should be easy to wash and dry. It should be stitched to the cloth firmly.
- (iii) If some accessory used is likely to get spoiled in washing, it should be easily replaceable.
- (iv) Trimming and decoration may enhance the appeal of the dress, yet excessive use of decoration is unpleasant.



**(J) Fashion**

Ensure that the dress you are purchasing should be of the latest fashion. Information about the latest fashion is available in fashion magazines. The style of dress should match your lifestyle. Fashion should not be followed blindly. The length, design and decoration of the dress should be suitable to your body figure.

**(K) Size**

It is essential to know the size of the garment before purchasing it. Ready-made garments are available according to chest and waist sizes. Some companies have sized their garments like XXL, (Extra Extra Large), XL (Extra Large), L (Large), M (Medium), and S (Small). In order to purchase a dress of right size, it is important to have a trial of it so that, if needed, it can be altered to different size.

**(L) Comfort and fit**

It is difficult to judge the fitting of a dress from its appearance. Some dresses are not very comfortable to wear. Therefore, ready-made dresses should be purchased after trial. The comfort of the dress should be ensured in standing, sitting, walking, etc. during trial. It should neither be too tight nor too loose. The decorative pieces should not be of pinching type.

**(M) Cost**

Ensure that the dress you have selected is worth the money you are paying for it. If doubtful, compare from other shops. Maintenance cost should also be checked.

The cost of the dress should be according to our paying capacity. We should look for only those clothes that are within our reach. This saves time and energy of both the seller and the buyer. If some better and durable dress is available by paying some more money, it should be preferred. It will pay for its value in the long run.

**(N) Sale promotion Techniques**

At present in almost all the shops, owners sell their garments with sale promotion techniques. These are as follows:

- (i) Discounts
- (ii) Providing gifts/gift coupons
- (iii) Buying today paying tomorrow
- (iv) Buy one and take two or three
- (v) Bonus points for the purchase exceeds for a particular amount

Along with these offers today we can see most of the people are attracted to buy things by means of advertisements. By keeping above facts in mind, we can select nice and durable clothes.






➤ **Care, Maintenance and Storage of clothes**

**Care Labels of clothes**

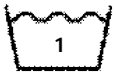
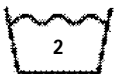

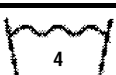
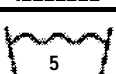
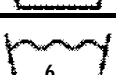
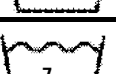
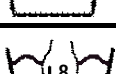
There was a time when only basic fabrics like cotton, silk, wool or nylon were available in the market. But today, customers are spoiled for choice as a wide variety of fabrics in innumerable blends and finishes are present in the market. Each type of finish or blended fabric requires a specific form of care and handling and it becomes necessary that the consumer today is made aware of the correct procedure to take care of the fabrics being used. Care labelling attached to the fabrics and garments make it convenient for a customer to understand the unique requirement of each and every fabric.

The wear life of garments depends on the care one takes of them. In certain countries it has been mandatory, that all garments and even fabrics carry labels indicating whether they can be laundered or have to be dry-cleaned and which laundering processes are to be carried out or to be avoided. Even garments that may be laundered by the harshest methods have to bear a label which reads: Wash or Dry-clean. If the garment cannot be washed without harm a warning is to be given. Now-a-days Indian exporters of garments are required to do care labelling by the importing countries.



(A) **Symbols used in care labelling:**

Symbols	Representing	Instructions
	Wash tub	Washing
	Bleach	Bleaching
	Dry	Drying
	Hand iron	Pressing or ironing
	Dry-cleaning cylinder	Dry-cleaning






**1. Washing instructions:**

Symbols	Instructions
	<ul style="list-style-type: none"> <li>Machine wash, very hot (85°C) for white cotton and linen articles.</li> </ul>
	<ul style="list-style-type: none"> <li>Machine wash, hot (60°C), for cotton, linen or rayon articles.</li> </ul>
	<ul style="list-style-type: none"> <li>Machine wash, hot (60°C), drip dry for white nylon.</li> </ul>
	<ul style="list-style-type: none"> <li>Machine wash, hot (48°C), drip dry for coloured nylon, polyester, cotton and rayon articles.</li> </ul>
	<ul style="list-style-type: none"> <li>Machine wash, warm (40°C), for cotton, linen or rayon articles.</li> </ul>
	<ul style="list-style-type: none"> <li>Machine wash, warm (40°C), for acrylic, acetate and polyester/wool blends.</li> </ul>
	<ul style="list-style-type: none"> <li>Machine wash, cold (30°C), for wool and wool blends.</li> </ul>
	<ul style="list-style-type: none"> <li>Hand wash only, luke warm water, drip dry acrylics, nylon, polyester.</li> </ul>

**2. Bleaching instructions:**





Symbols	Instructions
	Use chlorine bleach
	Do not bleach

**3. Drying instructions:**



Symbols	Instructions
	Tumble dry
	Do not tumble dry
	Hung to dry or line dry
	Dry on a flat surface
	Drip dry

**4. Ironing instructions**

The symbol in itself very appropriate and clear by showing one, two or three dots for different temperatures to be used while ironing different types of fabrics. When the fabric is not to be ironed, the iron is crossed out.

Symbols	Instructions
	Hot 210°C (Cotton, linen)
	Warm 160°C (Polyester and wool blends)
	Cool 120°C (Acrylic, nylon, acetate)
	Do not iron

## 5. Dry cleaning instructions

Symbols	Instructions
	Use petrol
	Do not dryclean

It is mandatory that manufacturers of readymade apparel have a permanent care label stitched to the garment. This care label has to remain legible throughout the useful life of the garment. The care labels should be placed in such a way that they can be found easily by the purchaser. In case the item is packaged and the care label cannot be seen then care information must also be given on the package or on a hand tag affixed to the garment. If a care label gives washing instructions but does not warn against dry-cleaning, one should be able to dry clean the garment.

### (B) Placement of labels on garments:

All labels are placed where they can be easily found. Care instructions can be printed on a label or woven into it. They may be printed directly on the fabric so that they will remain readable for the life of the garment. Many manufacturers print the care instructions on the back of their own brand labels. This is permissible if the label states care instructions on reverse side. Care labels placed on different garments are shown as below:

- The labels for blouses, dresses, jackets, vests, knit tops, night gowns, undershirt, slips, shirts, sweaters, are affixed at the centre back neckline in such a way that it will be permanent (Fig.5.6).



Fig. 5.6 : Knitted top



Fig. 5.7 : Trousers



Fig. 5.8 : Coat and Jacket

- The label for trousers, pyjamas, skirts, shorts, tights, half slipsetc are affixed to the inside waistband in such a way that it will be permanent (Fig.5.7).
- The label for coats and jackets are affixed to the right-hand front facing before the waistline or at the neckline (Fig.5.8).

A permanent care label is an implied warranty that the product will be satisfactory if the care instructions are followed.

## LAUNDRY DETERGENTS AND SOAPS

We use a lot of soaps and detergents for cleaning purpose in our day to day life. All of us also have our own individual preferences for these cleansing agents. We are always fascinated by the packaging, the fragrance, or the performance of these soaps and we are also disheartened too by the harmful effect of these cleansers on garments and our hands. Have you ever tried to analyse why some cleansing agents work better than the others why these are more or less harmful, or why we end up using a particular brand all through our life? Let us try to see what goes into the making of these soaps and detergents.

The word detergent originates from verb ‘to deterge’ which means ‘to clean’ and therefore refers to all ‘cleansing agents’. Detergents include not only laundry soaps and synthetic washing powders and liquids but all sanitizers, metal cleaners, lavatory cleaners, hand cleaners and toilet soaps.

Soaps are manufactured from natural oils or fats. Synthetic detergents are synthesized from chemicals. Laundry detergent and soaps are sold in cake, flake, bar, powder and liquid forms.

### Laundry Detergents

#### Types of detergents:

There are some naturally occurring detergents and some of these are still used though to a small extent, in our country.

#### (A) Natural

- (i) *Reeta nuts*
- (ii) *Shikakai*
- (iii) Bran

#### (B) Synthetic

- (A) **Natural detergents:** These are obtained from natural or vegetable sources described as under:

- (i) **Reeta nuts:** These are obtained from a full grown tree of North and South India and Srilanka. Its fruit which is alkaline in nature is dried and stored. It gives good lather and works better both in hard and soft water. Its solution can be easily made at home.

	Ingredients	Quantity
(i)	Water	One litre
(ii)	<i>Reetanuts</i>	250 grams
(iii)	Vinegar	1 teaspoon

**Process:**

- Boil water in a container
- Deseed nuts by crackling and separating these.
- Put the outer cover of *reetanuts* in boiled water for 15 minutes or pressure cook it for five minutes.
- Cool this mixture for two to three hours.
- Rub and squeeze out the solution.
- Strain this solution by keeping four layered muslin cloth under it.
- Put the solution in glass jars or bottles.
- Add one teaspoon white vinegar in it to avoid fungus formation.

Use this solution as and when required for washing woollen, silk and coloured cotton which is safely used, but avoid washing white clothes as these will turn yellowish in colour.

- (ii) **Shikakai:** These are obtained in the form of pods and found in South India. These are used for washing brocade, *zari* and embroidered articles. It is mostly used for washing coloured clothes and silk garments.

- (iii) **Bran:** Wheat bran is not commonly used but has cleansing properties. This can be safely used for cotton and silk fabrics whose colour starts bleeding.



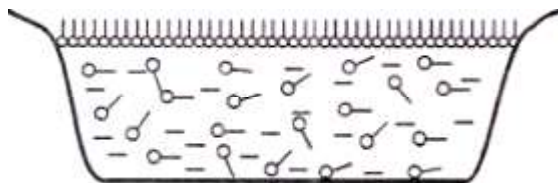
Fig. 5.9 : Reeta nut powder

**Phenomenon of detergency**

To be effective in cleaning, the detergent should be able to accomplish the following:

- Its aqueous solution must wet the fabric.
- Detach the dirt from the fabric surface and maintain it in suspension.

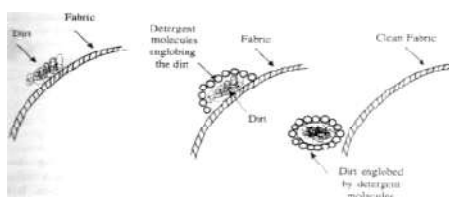
3. Prevent the soil removed from re-depositing on the fabric i.e. a good detergent must have wetting, emulsifying and suspending powers.



*Fig. 5.10 : Orientation of detergent molecules in water*

When a fabric is immersed in water containing a detergent it is more readily wetted out than when it is immersed in water alone. The reason behind this is that a detergent is a surface active agent and it lowers the surface tension of the water to which it is added. Detergent molecules tend to arrange themselves at the water air interface. The hydrophobic tails of the detergent molecules are repelled by water creating a pull in a direction opposite to the inward pull of water molecules, thus lowering the surface tension of water. The hydrophobic tails of the detergent molecules are oleophilic in nature. They penetrate into the oil and englobe it and lift it off the fabric surface.

It is of utmost importance that the dirt dislodged from the fabric remains in suspension in the wash water and not get re-deposited on the fabric before it is washed off by the rinsing water. The coating of detergents on the dirt helps to prevent contact with other surfaces and thus keep the dirt in stable emulsion in water. This is also partly due to the fact that the hydrophilic heads coating the dirt are attracted to water.



*Fig. 5.11: Action of detergent molecule on dirt*

A good detergent is one that cleans clothes without much agitation, in all types of water, is effective over a wide range of temperatures, is harmless to the skin and the fabric, is easily rinsed out and is biodegradable. Development of detergents for washing clothes is linked with the development of textiles and washing machines and so there are an ever growing number of detergents in the market.



### Properties of a good detergent

They are in powder form and easy to handle. A little rising is required when soaked in detergent solution and hardly need hard washing. No greasy curds or rings are found clinging to the wash tub. These are effective in both hard and soft water.

### Laundry Soaps

#### Action of soaps

The soaps help in breaking down the surface tension or the so called surface resistance of fabric, thus allowing the wetting of fabrics move readily than with plain water. The dirt in fabric consists of grease and dirt particles. The soap solution breaks down the grease into small particles which come out of the fabrics and float in the solution. The dirt is loosened due to removal of grease particles and by the action of soap, the fabric is relieved off both the grease as well as the dirt.

#### Types of soaps:

There are various types of soaps used daily in our homes for washing clothes. These are as under:

- (a) **Bar or cake soap:** The bar or cake is used for rubbing the accumulated dirt on cloth. This is very economical to use for washing clothes.
- (b) **Soap jelly:** This jelly can be made easily at home by heating one part of a superior quality soap in five parts of water.
- (c) **Soap flakes:** Soap of a superior quality is grated and converted into fine flakes. It is then put in hot water and used for soaking and washing clothes. It requires no vigorous rubbing of clothes.
- (d) **Soap powder:** Soap powder is usually made from liquid soap by mixing one fourth part each of silicate and phosphate in it. It is then passed through hot air or left open to solidify it. Then it is converted into powder form.

#### 1. Liquid soap: For preparing liquid soap, the process is as under:

	Ingredients:	Quantity
(i)	Water	100 parts
(ii)	Soap pieces (good quality)	6 parts
(iii)	Ammonia	6 parts
(iv)	Methylated spirit	4 parts
(v)	Glycerine	2 parts

#### Process

- (i) Boil water and put soap pieces in it.

- (ii) Stir slowly but continuously till the mixture is converted into homogenous consistency.
- (iii) Cool this mixture put in glass jars and bottles.

Use this liquid soap as and when it is required. This can be safely used for silk and woolen blended fabrics.

#### Composition of soap:

For preparing soaps, fats or oils and alkalies are the basic materials which are used. Other substances included are silicates, starch and soap stones which act as fillers.

- (a) **Fats and oils:** These compounds occur naturally both in animals and plants. The vegetable fats are represented by coconut, cotton seed, mustard oil, rice husk oil, ground nut oil etc.
- (b) **Alkalies:** For soap preparation, strong alkalies like sodium hydroxide (caustic-soda) is used for ordinary soaps and potassium hydroxide (caustic potash) is used in the manufacturing of soft soaps.
- (c) **Sodium silicate:** It is a brittle substance resembling glass, alkaline in nature and possesses good detergent properties.
- (d) **Starch:** Starch combines with water to form a soluble gelatinous mass. It is used to give firmness to soap. The starch is generally used in small quantity i.e. two percent level and use of higher than this level spoils the cleansing action of soap.
- (e) **Soap stone:** This is used as a filler, add weight to the soap. This has neither a detergent nor binding property.
- (f) **Resin:** Resin is used to reduce the cost. It has less cleansing power than soap, and it tends to give a yellow colour to white fabrics which is harmful too.
- (g) **Salt:** Salt is used for graining the soap out from a mixture of oils and alkali.

#### Preparation of soap

	Ingredients		Quantity
(i)	Caustic soda	-	200 grams
(ii)	<i>Maida</i>	-	150 grams
(iii)	Coconut oil	-	400 ml
(iv)	Water	-	600 ml



Fig. 5.12 : Laundry soap

#### Method

- (i) Dissolve caustic soda and water in a plastic bucket or bowl for 4-5 hours.
- (ii) Mix *maida* and oil in a big plastic bowl.

- (iii) Add caustic soda solution slowly to the mix of oil and *maida* and stir it vigorously (in one direct only). Continue stirring till the mixture is thick, light and fluffy.
- (iv) Now pour this mixture in small containers and allows the soap to set.
- (v) Cut with the help of a thick thread and wrap in a butter paper.

#### Properties of a good laundry soap

A good soap should contain 30 per cent of water and 60-64 per cent of combined fatty acids; it should be free from alkali and resins because it makes clothes yellowish and hard. It should be neither too hard nor too soft, readily soluble in water and also form a good lather.

#### Difference between detergents and soaps

Detergents	Soaps
1. Detergents are carbonic compounds which are not alkaline.	1. Soap are made from fat and alkali by saponification method.
2. These are costly.	2. These are cheap.
3. These are suitable for delicate clothes.	3. These are not suitable for delicate clothes.
4. They clean both in hot and cold water.	4. Work better in hot water.
5. They clean better the cloth even in hard water.	5. They do not produce lather with hard water and are not able to wash clothes well
6. Consume less water for rinsing.	6. Sufficient quantity of water is required to remove soap from the cloth.

#### STAIN REMOVAL

**Stain** is a spot or mark of discolouration left on fabrics by the contact and absorption of some foreign substance. Some stains are easily removed by ordinary methods or reagents. But there are quite a few, which need special treatment. This entirely depends on the nature of the stain. Appearance, smell, feel and colour help to identify stain. Stains, therefore, have to be classified according to the substance that causes them. Broadly speaking they can be divided into:

(A) Animal (B) Vegetable (C) Grease (D) Dye and (E) Mineral.

(A) **Animal stains** are those caused by blood, egg, milk, and meat juice. As these

contain protein matter, heat must be avoided in removing them, otherwise the protein matter will get fixed in the stain.

(B) **Vegetable stains** include those caused by tea, coffee, fruit and wine. These are acidic and therefore require alkaline reagents to remove them.

(C) **Grease stains** may be just grease spots or some colouring matter fixed with grease. These include butter, curry, oil-paint, varnish, and tar stains. In removing these stains, some grease solvent or an absorbent is first used to dissolve or absorb grease before the removal of the colouring matter. A solvent soap is also very effective for removing these stains from washable fabrics.

(D) **Dye stains** may be acidic or alkaline, and so, the nature of the stain is identified before a specific removing reagent is used.

(E) **Mineral stains** such as iron mould, black ink and certain medicine stains are compounds of a metal and a dye.

Neither perspiration nor scorch marks fall into any of the above groups.

**Grass stains** come under vegetable groups but a different method is used to for removing the green colouring matter (Chlorophyll).

Stain removing must be done with care and in such a manner as to restore the garment to its original appearance and texture.

### General Rules

- (i) Remove the stains when fresh, as then they are easy to remove with simple methods. Once the stain is fixed on the fabric by laundering and ironing or it gets old it is very difficult to remove it.
- (ii) Always rub the stain lightly because hard rubbing may roughen the surface of the fabric or damage its colour and texture.
- (iii) Rub the stain from outer edge to the centre to avoid its spreading.



Fig. 5.13 : Stains



Fig. 5.14 : Tea stain

- (iv) Study the nature and texture of the fabric especially when chemical reagents and bleaches are to be used, as these have harmful effects on wool, silk, and synthetic fabrics. If bleaching has to be done, only hydrogen peroxide in dilute solution is used for silk and wool. The fabrics must be rinsed in cold water several times after the above treatment.
- (v) Treat known stains with specific reagents.
- (vi) Treat unknown stains with simple method such as steeping in cold or hot water or washing with soap. Then use mild reagents and follow with strong ones. If the stain still persists, treat with bleach only when all other treatments fail. The fabric should be in contact with the reagent only until the stain is removed. The fabric should be then rinsed in water several times to remove the reagent, which if allowed to dry in the fabric, may damage it.
- (vii) If a stain is removed by the sponging method, sponge the stain with the solution, working in a circular movement starting from the outer edge of the stain to its centre. This prevents the stain from spreading.

#### Methods of stain removal

Stain	Method of removal
<b>Tea and Coffee</b>	Pour boiling water through. Steep in warm water and borax powder solution. Steep in warm water. Apply glycerine and rub. Repeat till stain is removed.
<b>Blood</b>	Soak in cold water. Steep in salt and water but never soak in hot water because the protein will get fixed on the fabric. Wash in dilute ammonia.
<b>Curry/Haldi</b>	Wash with soap and water. Bleach in sunlight, grass and air. Treat with dilute Potassium permanganate solution followed by dilute ammonia.
<b>Fruit</b>	Soak in warm water borax solution. Soak in warm water and salt solution.
<b>Grass</b>	Steep in methylated spirit. Wash with soap and water.
<b>Lipstick</b>	Moisten and soften with glycerine. Leave for a while and wash with soap and water. Steep in methylated spirit and wash with solvent soap.

<b>Egg</b>	Wash in cold water and then then in warm water and soap. Apply salt and pour warm water through.
<b>Grease and ghee</b>	Apply chalk or talcum powder. Leave for half an hour. Brush it off and wash with hot water by applying soap.
<b>Henna</b>	Dip in warm milk for half an hour then wash with soap and water.
<b>Nail polish</b>	Treat with acetone or methylated spirit. Wash with soap and water. Never use acetone on acetate rayon fabric.
<b>Milk</b>	Wash it with borax powder and hot water solution.
<b>Paint</b>	Soak in turpentine or kerosene oil. Wash with solvent soap.
<b>Ball pen</b>	Keep a blotting paper under the stained fabric and apply methylated spirit with cotton swab.
<b>Rust</b>	Apply lemon, vinegar, or acetic acid. Wash with warm water and soap.
<b>Blue black ink</b>	Rinse it in cold water. Rub lemon and salt and leave for half an hour. Soak stain in sour curd for half an hour .Wash with soap and water. Rub tomato and salt. Bleach with hydrogen peroxide.
<b>Ink red</b>	Wash with soap and water. Steep in borax solution.
<b>Ice cream</b>	Wash in cold water and soap. Steep in warm borax solution.
<b>Shoe polish</b>	Steep in turpentine. Wash with solvent soap.
<b>Chewing gum</b>	Apply ice cubes over it. When it hardens scrape off with blunt knife. Wash with cold water and soap.

### CARE AND STORAGE OF CLOTHES

A group of students were chatting in school in their lunch break. Sunita complimented Shelly for her sparkling white shirt which she had purchased two years ago. Just then Anjali told them that she was unhappy about her black pure wool expansive sweater which was spoiled after one washing. Then Tina told them that they should not wash all type of clothes with one detergent. She advised that a little care can keep their dress as good as new. Let us learn about how to take care of clothes.

Clothes need proper care in order to maintain their luster, shape, appearance and strength. This requires care during wearing, washing, drying, ironing and storing. As a good amount of money and time is spent on selecting these clothes, some effort is also required to maintain them.

**Points to keep in mind for proper maintenance of clothes:**

- (i) Clothes should not be allowed to remain dirty for a long duration. This shortens their life by weakening the fibre due to long contact with dirt, perspiration, or stains.
- (ii) Dirty clothes should be kept properly in a bag or basket, for laundering and should not be scattered on the floor.
- (iii) The fabric should be mended or fasteners should be replaced at the earliest if they are broken.
- (iv) The expensive and delicate clothes like silks which are used occasionally should be either hanged or folded properly.
- (v) The garments for storing should be folded properly to keep them wrinkle free.

**Care of clothes during wearing and taking off:**

Care during putting and taking off clothes is also required to avoid any damage in shape and appearance of the fabrics. Following points should be adopted:

- (i). Do not struggle much while putting on and taking off the clothes.
- (ii) Always open the buttons and fasteners before putting the dress over the head or in legs.
- (iii) Always remove pins, jewellery and belts before changing the clothes.
- (iv) The buttons, zippers and should be closed or opened with care.
- (v) Always remove shoes before changing the lower garments.

**Care of clothes during washing:**

Following things should be taken care off while washing clothes:

- (i) Cottons and linens can be washed easily but clothes made of wool and silk require dry cleaning.
- (ii) If woolens have to be laundered at home, wash them with mild alkali free soap solutions.
- (iii) Friction should also be avoided while washing fancy and delicate clothes.
- (iv) Hanging of wet woolens clothes deforms their shape due to stretching. Dry them on flat surface.
- (v) Uneven or too hot water while washing woolens may cause shrinkage.
- (vi) It is better to get those clothes dry-cleaned which bleed or do not have fast colors.

- (vii) Coloured clothes should not be steeped too long and these should never be dipped in soap solution with white clothes.
- (viii) Do not soak clothes with non fast colours with fast coloured ones resulting in staining.
- (ix) Do not use detergents of poor quality on any fabric resulting in reduced luster and freshness.
- (x). Coloured clothes should not be dried in direct sunlight.
- (xi) Clothes should be dried properly. Insufficient drying can lead to undesirable odors from garments.



*Fig. 5.15 : Soaking white and coloured clothes*

#### **Care of clothes while storing:**

Clothes require care not only during use but also while they are stored. The weather is not same all the year around, hence the need of specific clothes at specific weather necessitates the storage of clothes at the end of that season. Following points should be considered while storing clothes:

- (i) The garments that require washing should be washed before storing. Those require dry clean should be dry-cleaned.
- (ii) Clothes should not be kept in damp condition. Moisture causes mildew which may damage the clothes.
- (iii) Storage space should be well lighted not a dark one .
- (iv) The storage space should be dry, insect free and away from dust and dirt.
- (v) Shelves should be deep and in plenty.



- (vi) Airing should be done of boxes or cupboard as well as clothes before and after storage.
- (vii) The pockets should be emptied out.
- (viii) Spread news paper or old clean sheet in the cupboard or storage box.
- (ix) Spray insecticide in the storage space to prevent any damage from insects or moths.
- (x). Repellents such as tobacco, dried neem leaves etc. can be used in the storage. Naphthalene balls should be put in muslin bags in the boxes.
- (xi) Newspaper can be used for wrapping woolens as moths dislike printing ink.
- (xii). Clothes should be packed separately according to their nature e.g. woolens separately, silks separately, pull-overs at one place, sarees at other place and so on.
- (xiii) Never store starched clothes for long time.
- (xiv) Never place the brocade sarees along with other clothes which have been protected from insects by naphthalene balls. Muslin bags are available for storing such clothes.



*Fig. 5.16 : Storage of cloth*

### Activity

- Take a survey of the nearby market, study and note down which sale promotion techniques are being used by the shopkeepers.
- Collect 20 different types of care labels from old clothes and arrange them according to the content of the material.
- Visit a fabric shop to check the information printed on fabric rolls of different quality. Compare the information available on fabric rolls of different companies.
- Collect ten different types of laundry soap wrappers and note down the contents used in the preparation.
- Prepare a laundry soap using different moulds and shapes and do cost comparison with a soap available in market.

### THINGS TO REMEMBER

- A good detergent is the one that cleans clothes without much agitation in all types of water
- Detergent is a surface active agent and it lowers the surface tension of the water to which it is added.
- Fats or oils and alkalies are the basic materials which are used in a soap.
- A good soap should contain 30% of water and 60-64% of combined fatty acids.
- Soap stone has neither a detergent nor binding property but used as a filler to add weight to the soap.
- All garments and even fabrics carry care labels.
- The wear life of garments depends on the care one takes of them.
- Wash tub symbol represents instruction of washing.
- A hand iron symbol represents instructions of pressing and ironing.
- When a fabric is not to be ironed, the iron symbol is crossed.

- Drip dry symbol indicates that no spinning is required.
- Care instruction should be printed on a label or woven into it.
- Do not hang woolens after washing for drying.
- Clothes should not be allowed to remain dirty for a long duration.
- Storage space should be well lighted as insects grow in dark and humid areas.
- Unsuitable drying method resulting in colour fading.
- Improper storage of clothes resulting in formation of holes etc.
- Soaking more soiled clothes with less soiled ones, resulting in transfer of soil from the one to the other.

### QUESTION BANK

#### Objective type questions

1. The cupboards, suitcases or storing space should be dry, airy and sprayed with\_\_\_\_\_
2. The dirt in fabric consists of \_\_\_\_\_ and \_\_\_\_\_ particles.
3. Fats and alkalies are the basic material used in a \_\_\_\_\_
4. \_\_\_\_\_ is a natural detergent
5. \_\_\_\_\_ is used in the soap to reduce the cost.
6. Tears and holes of garments should be mended
  - (a) Before washing
  - (b) After washing
  - (c) As soon as you see them
  - (d) All above
7. While washing woolens and silks, use
  - (a) Alkali free soap solution
  - (b) Acid free soap solution
  - (c) Mild soap
  - (d) Any soap solution
8. The shelves of the cupboards should be
  - (a) Low
  - (b) Deep
  - (c) In sufficient number
  - (d) High

9. Soapy water of reeta nuts is slightly
  - (a) Alkaline
  - (b) Acidic
  - (c) Disinfectant
  - (d) All of these
10. Soaps consume less water for rinsing as compare to detergent.  
true/false
11. Friction washing should be avoided for all type of clothes.  
true/false
12. Hanging of wet woollen deforms their shapes due to stretching.  
true/false
13. Clothes should be stored at dark and cool place. true/false
14. Why cotton clothes are comfortable in summer?
15. List down two reasons for which care of garments is required.
16. List down three categories of stains.

#### **Short answer type questions**

1. What precautions should be taken while wearing and taking off clothes?
2. What precautions are required to be taken while laundering woolens?
3. Why starch should be removed before storing clothes?
4. Write down the methods of removing stains of nail polish and ball pen?
5. What are the features to be checked in plackets while buying readymade garments?

#### **Long answer type questions**

1. Discuss various points to be kept in mind while selecting clothes for preschoolers.
2. Discuss various factors that affect the selection of clothing.
3. What are the various rules to follow while removing different type of stains?
4. How can we classify stains into different categories with examples?
5. What are the important points to keep in mind before buying readymade garments?

\*\*\*\*\*



# ***PRACTICALS***

## SECTION- A

### **PRACTICAL-1 : ORGANIZATION AND EVALUATION OF WORK CENTRES**

All of us perform different activities each day. Each activity performed at home has specific requirements and it would be best performed if it has specified work area for it. The area specified for an activity is known as the work centre.

#### **Principles for organization of work centre**

- Design of the work centre should be worker friendly.
- The arrangement of work centre should be according to work style of the worker.
- Work centre should be connected properly for smooth work performance e.g. in kitchen storage area for washed utensils should be near the sink, storage area for spices should be near the cooking. Similarly in study room, books/ stationery should be placed either on right or left side of the study table.

So for performing all the household activities i.e. cooking, washing, sleeping, studying, playing and entertaining, receiving guests etc. specific work centre is required. For reducing fatigue while performing these activities, the work centres should;

- be of appropriate size according to the number of people sharing it,
- have sufficient equipment required for carrying out a particular activity
- be properly arranged so that worker may be able to use the equipment without any undue stress and strain
- well lit, airy and neat/clean.

Taking into consideration, the above mentioned requirements of a work centres, evaluation of different work centres can be done through following criteria:

- |                                     |        |
|-------------------------------------|--------|
| • size of work centre               | -      |
| • no. of people sharing that centre | -      |
| • list of equipment in that centre  | -      |
| • is it convenient for the family?  | Yes/No |
| • is there enough storage space?    | Yes/No |
| • is it properly arranged?          | Yes/No |
| • is it well lit and airy?          | Yes/No |

On the basis of above observations –

Suggest improvements

## WORKSHEET

Study the cooking/washing centre of your kitchen and evaluate these as per standard principles for organization/design of work centre enumerating its positive and negative features.



## **PRACTICAL 2 : PREPARATION OF FAMILY BUDGET**

Budget is an estimate of future income from various sources and expenditure of the family on different items for a given period of time. The period can be a week, a month or a year depending upon the source/amount of income and expenditure of the family.

### **Types of family budget:**

Family budget may be of three types:

- Balanced budget
- Surplus budget
- Deficit budget

### **Balanced budget:**

Balanced budget is comprised of a spending plan showing no saving. The expenditure is equal to income and there is no saving, no deficit.

### **Surplus budget:**

In this spending plan shows saving. When the income is more than expenditure plan and some income is left behind for saving. This is a good budget for the family.

### **Deficit budget:**

In this type of budget expenditure exceeds the income and family may need to borrow money for meeting its requirements. This kind of budget is not good for a family. Such family should find the ways for supplementing income rather than borrowing.

### **Steps involved in budget making:**

Different steps involved in budget making are discussed in detail in theory. Please refer Chapter 4 of Section – A for preparing your family budget.

## WORKSHEET

Prepare a monthly budget for your own family according to the steps discussed in theory using following proforma. Specimen proforma for preparing monthly budget

Month \_\_\_\_ 201

[illegible]

### PRACTICAL 3 - OPENING AND OPERATING A BANK ACCOUNT

A bank is “an institution where individual/organization keeps the money in safe custody”. The bank also pays a certain amount of interest on this money. For families to save and invest money, bank is the safest institution which offers following facilities:

- (i) Depositing/withdrawing money when needed.
- (ii) Cheque, draft and money transfer facility, by which money can be sent to other places.
- (iii) Locker facility where jewellery valuable goods and important documents can be kept safely.
- (iv) Loan facility for the purchase of vehicles, house, household equipment and personal loans (education loan, loan for starting an enterprise).
- (v) Credit card facility and ATM (Automated Teller Machine) facility.

#### Types of Bank Accounts

Following four types of accounts can be opened in a bank;

1. **Saving Account:** This is the account where money is kept when it is not required for immediate use. In this account money can be deposited at will but there are restrictions on withdrawals in a week. A minimum balance that is to be maintained in the account is as low as Rs. 500/-. The bank pays small interest on saving deposits.
2. **Current Account:** This is a running account in which the account holder is provided with the facility to deposit and withdraw the money as and when desired. There is no limit on number of withdraws. This account is more suited to businessmen. No interest is paid in such an account.
3. **Recurring Deposit Account:** This is an ideal form of deposit account for a family to inculcate regular saving habit. Under this one has to deposit a fixed amount of money every month without fail. The investment period is agreed initially. At maturity, a lump sum amount inclusive of interest is paid to the depositor. The interest is worked out on the period for which the money remains with the bank. The recurring deposit accounts have a higher rate of interest than the saving account.
4. **Fixed Deposit Account:** Under this scheme, fixed amount is deposited in the bank for a given period. The period ranges from 45 days to 10 years. The rate of interest is generally higher than saving bank account and is calculated on the basis of period for which the deposits are made. Loans can be taken against such deposits in case of early requirement.

## How to Open a Bank Account

You will have to fill up the a proforma to open an account with the bank. Along with this a passport size photograph, a copy of any of these viz; the Adhar card, driving license or voter card has to be submitted as address proof.

भारतीय स्टेट बैंक State Bank of India		Account Opening Form: Part-I <small>To be separately filled by each applicant (new customers only)</small>	
(For office use only) CIF No.	Account No.	Date	Branch to affix rubber stamp of name and code no.
<b>Solo/First Applicant</b>			
<p>1. Please fill up in BLOCK letters only and use black ink for signature. Please leave one box blank between two words. Tick (✓) the appropriate boxes. 2. Fields marked asterix (*) are not mandatory. 3. Please affix a passport size photograph in the box provided. Also enclose another photograph for affixing in the pass book. 4. For opening account of minors, where proof of identity/address is not available, the same will be provided by Father/Mother and Natural Guardian. 5. In case of illiterate customers, Left Thumb Impression (LTI) to be affixed and verified.</p>			
<b>Personal Details</b>			
Customer Type: <input type="checkbox"/> Public <input type="checkbox"/> Staff Senior Citizen: <input type="checkbox"/> Yes Minor: <input type="checkbox"/> Yes			
Name: <input type="checkbox"/> Mr. <input type="checkbox"/> Ms. <input type="checkbox"/> Mrs. Other <input type="checkbox"/>			
Name of Father / Husband / Guardian: <input type="checkbox"/> Mr. <input type="checkbox"/> Ms. <input type="checkbox"/> Mrs. Other <input type="checkbox"/>			
Date of Birth: Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female Nationality: <input type="checkbox"/>			
Mother's Maiden Name: Marital Status: <input type="checkbox"/> Married <input type="checkbox"/> Unmarried <input type="checkbox"/> Others			
UID: UID of Father/Mother (in case applicant is a minor):			
<b>Correspondence Address (Current Residential/Office)</b>			
Landmark/Street:			
City: PIN: State:			
Telephone no. Mobile no.			
<b>Permanent Address</b>			
Same as Correspondence Address <input type="checkbox"/>			
Landmark/Street:			
City: PIN: State:			
Telephone no. Fax no.			
Email Address:			
<b>Additional Details (wherever applicable)</b>			
Income: <input type="checkbox"/> monthly <input type="checkbox"/> annually Assets (approximate value): Rs.			
*Religion: <input type="checkbox"/> Hindu <input type="checkbox"/> Muslim <input type="checkbox"/> Christian <input type="checkbox"/> Sikh <input type="checkbox"/> Others			
*Category: <input type="checkbox"/> General <input type="checkbox"/> OBC <input type="checkbox"/> SC <input type="checkbox"/> ST			
Educational Qualification: <input type="checkbox"/> Non-Graduate <input type="checkbox"/> Graduate <input type="checkbox"/> Post Graduate <input type="checkbox"/> Others			
Occupation Type: <input type="checkbox"/> Salaried <input type="checkbox"/> Self-employed <input type="checkbox"/> Business <input type="checkbox"/> Retired <input type="checkbox"/> Student <input type="checkbox"/> Others			
Organization's Name: *Designation/Profession:			
Passport no. *Others:			
I.T. PAN: OR Form 60/61			
Vehicle: <input type="checkbox"/> Car <input type="checkbox"/> Two-wheeler <input type="checkbox"/> Other			
Life Insurance Value: <input type="checkbox"/> Upto 2 lakhs <input type="checkbox"/> Upto 5 lakhs <input type="checkbox"/> Above 5 lakhs			
Life Insurance: <input type="checkbox"/> SBI Life <input type="checkbox"/> Other			
Existing Loans: <input type="checkbox"/> Car Loan <input type="checkbox"/> Home Loan <input type="checkbox"/> Personal Loan <input type="checkbox"/> Education Loan <input type="checkbox"/> Business/Agriculture			
House: <input type="checkbox"/> Ancestral <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Employers			
Mutual Funds: <input type="checkbox"/> SB/IMF <input type="checkbox"/> Other <input type="checkbox"/> No investments			
Credit Card: <input type="checkbox"/> SBI Card <input type="checkbox"/> Others			

The account has to be introduced by an individual already holding an account with the bank. This ensures that no undesirable individual enjoys the bank facilities.

### Specimen signature card

A card bearing the sample specimen signatures is filled and retained by the bank for verification.

<b>SPECIMEN SIGNATURE CARD</b>		ACCOUNT NO: _____
ACCOUNT TYPE: (Please check one) <input type="checkbox"/> Individual <input type="checkbox"/> Joint Or <input type="checkbox"/> Others _____		
ACCOUNT NAME: (Primary Account Holder) _____		(Secondary Account Holder) _____
POSTAL ADDRESS: (No. & Street, Building, Town/District, City/Province, Postal/Zip Code, Country)		
TELEPHONE NO.: _____	TIN: _____	CITIZENSHIP: _____
( Please Sign Twice [2X] )		
<u>PRIMARY ACCOUNT HOLDER</u>		<u>SECONDARY ACCOUNT HOLDER</u>
✓ _____	✓ _____	
✓ _____	✓ _____	
<small>IMPORTANT: Certificate will not be issued unless a specimen signature of the stockholder is on file with the transfer agents of the Company. PLEASE FILL OUT AND SUBMIT TWO (2) COPIES OF THIS SPECIMEN SIGNATURE CARD to COL Financial Group, Inc. at 2401-B East Tower, Philippine Stock Exchange Centre, Exchange Road, Ortigas Center, Pasig City, 1605 Philippines.</small>		Signature verified by: _____

- After this certain amount of money has to be deposited to start an account.
- After opening an account, the account holder is provided a passbook and cheque book.

### How to operate the bank account

The banking operations involve the use of cheque book/withdrawal slip, pay in slip and pass book/bank statement.

**Cheque:** The cheques come in a booklet form. The small cheque book has 10 cheques while big one may have upto 100 cheques.

The cheque is issued to the individual/organization after filling up the necessary details. Cheque books keep the personal record of your account. The details to be filled up in a cheque are as follows:

- (i) **Date:** It is important to fill in the date on the right hand top corner of the cheque. The cheque is valid for three months from the date of issue.
- (ii) **The name** of the individual/organization to whom the cheque is to be issued is filled in next. The name of the individual/organization should be filled in clearly.
- (iii) **The cheque has 'Pay to self or bearer'.** It means that the money can be encashed at the bank counter by the person presenting the cheque. You have to be careful while issuing and receiving such a cheque. Make sure it is not lost.

- (a) Main part of a cheque:

The image shows the main part of a cheque form. It includes a date field at the top right with a grid for DDMMYY. Below it, the 'Pay' field is followed by 'Rupees रुपये'. There is a line for the amount in words and a box for the amount in figures with a Rupee symbol (₹). Below this is the 'A/c No.' field. To the right, there is a line for 'Or Bearer' and a box for the signature. The text 'Payable at par through clearinghouse at all branches of H.D.F.C. BANK LTD.' is printed across the middle. At the bottom, there is a MICR line: @952400# 695240002# 045504# 31.

- (b) The record form of cheque:

Date	Cheque no.	Cheque issued to	Amount of cheque	of	Amount of deposit	of	Balance

- (iv) The cheque may read "A/c payee" within the two lines across the face of the cheque on the left hand top corner. The words 'or Bearer' may also be stuck off. This means that the cheque will be deposited in the name of the individual mentioned therein. This is a very safe cheque because it cannot be encashed at the counter. It has to be credited in the account before encashment.

The image shows a sample cheque from Indian Overseas Bank. It is dated 31-12-2009 and is payable to Jitendra Mansukhbhai Patel. The amount is Nine Hundred Ninety Nine Rupees (₹.Rs. 999/-). The cheque is marked 'A/c Pay Only' and 'Non Negotiable'. It is signed by Mr. John Jain for Demo Company Pvt. Ltd. The bank details include YANIAWADI BRANCH, BHAKTI NAGAR CIRCLE, YANIAWADI, RAJKOT - 360 002, and the branch code 2008/CSP/CA28. The IOBA number is 0000427.

- (i) The amount of money to be given should be clearly written in words as well as in figures. Remember to add 'only' at the end of the amount in words. This will rule out any possibility of changing the amount in the cheque. Also write '/-' at the end of figures for the same reason.
- (ii) It is important to put signatures at the right hand bottom corner. These signatures should be the same as given in the specimen signatures.

The facility of a cheque book is available when one has a reasonable sum of money to his/her credit. Banks provide "withdrawal slips" at the counter to small amount holders to enable them to draw out the money. The withdrawal slip should be accompanied by individual's pass book.

**Pass Book:** It contains a record of your credits and debits. It gives you date wise information of your money transaction. The interest accrued to your capital is also recorded in your pass book.

**How to deposit cash/cheque:** Pay in slip is used to deposit cheque/cash in your account.

दिनांक DATE	विवरण PARTICULARS	चेक क्र० CHEQUE NO.	आहरित राशि AMOUNT WITHDRAWN	जमा की गई राशि AMOUNT DEPOSITED	खाता शेष BALANCE	संक्षिप्त हस्ताक्षर INITIALS
01-10-2004	06-10-2004	GTS New	First passbook			
22-03-2003	Trf Balance b/f			2453.92	2453.92	
01-07-2003	Int INTEREST TO DATE			113.64	2567.56	
01-01-2004	Int INTEREST TO DATE			44.94	2612.50	
01-07-2004	Int INTEREST TO DATE			45.72	2658.22	
01-10-2004	06-10-2004	LKM New	First passbook			
06-10-2004	Csh BY CASH RFR LKM			100.00	2758.22	
01-10-2004	20-12-2004	LKM New	First passbook			
20-12-2004	Csh TO CASH - W/ RFR LKM		1800.00		958.22	
01-10-2004	10-06-2005	LKM New	First passbook			
01-01-2005	Int INTEREST TO DATE			42.12	1000.34	
07-06-2005	Trf CHQ:777982 RFRUJK			5253.00	6253.34	
10-06-2005	Csh TO CASH - W/		500.00		5753.34	
01-10-2005	23-08-2005	GTS New	First passbook			
23-08-2005	Csh TO CASH - W/		700.00		5053.34	
01-10-2005	06-10-2005	UDP New	First passbook			
06-10-2005	Csh TO CASH - W/		1500.00		3553.34	
01-10-2006	17-10-2006	UDP New	First passbook			
02-01-2006	Int INTEREST TO DATE			77.91	3631.25	
04-07-2006	Int INTEREST TO DATE			64.08	3695.33	
17-10-2006	Csh TO CASH - W/ RFRUDP		500.00		3195.33	
01-10-2006	22-12-2006	UDP New	First passbook			
22-12-2006	Csh BY CASH			1000.00	4195.33	
01-10-2007	22-03-2007	PTM New	First passbook			
04-01-2007	Int INTEREST TO DATE			60.84	4256.17	
Carried forward Balance :					4256.17	

[illegible]



### **WORKSHEET-1**

Collect the necessary form from bank, fill up the same to open your account and stick below (A photocopy of form may be used).

## **WORKSHEET-2**

Procure two blank cheques forms (photocopies):

- Prepare one bearer cheque for Rs. 1000/-
- Prepare one account payee cheque for Rs. 2500/-

#### **PRACTICAL 4- : IDENTIFICATION OF FOOD ADULTERANTS THROUGH SIMPLE TESTS**

Food adulteration can be defined as lowering the quality of food by adding inferior/cheap substance to it or by removing an important part of it e.g. removing oil from cloves, almonds etc. or by adding harmful substances to it. Adulterants in food items can be easily detected at home. Following are some simple tests for detecting common food adulterants at household level.

Food article	Adulterant	Method of detecting adulterant
Milk	Water	Put a drop of milk on polished vertical surface. The drop of pure milk either stops or flows slowly leaving a white trail behind it. Whereas milk adulterated with water will flow immediately without leaving a mark.
Ice cream	Washing powder	Put some lemon juice in ice cream and stir it. Appearance of bubbles on stirring shows the presence of washing powder in it.
Sugar	Chalk	Dissolve sugar in a glass of water, chalk will settle down at the bottom.
Tea	Coloured leaves	Rub tea leaves on wet white paper, artificial colour comes out on paper.
	Iron filling	Move a magnet through the sample. Iron will stick to the magnet.
Honey	Water	A cotton wick dipped in pure honey burns when ignited with a match stick. If adulterated, presence of water will not allow the honey to burn.
Red chilli powder	Rhodamine culture (dye)	Take 2gms sample in a test tube, add 5ml of acetone. Immediate appearance of red colour indicates presence of Rhodamine culture.
	Brick powder	Brick powder settles fast chilli powder settles slowly when put in water.
Turmeric powder	Metanil yellow (dye)	Mix one teaspoon of turmeric powder in a glass of water. Add a few drops of hydrochloric acid to it. Instant appearance of violet, colour indicates the presence of metanil yellow.
Dal, Moong, Chana	Metanil yellow	Extract the colour with luke warm water from the sample pulses, add few drops of hydrochloric acid in this water. Appearance of pink colour indicates the presence of metanil yellow.
Green vegetables like chilli	Malachite green (dye)	Take small part of the sample and place it over a moistened white blotting paper, the impression of the colour on paper indicates the presence of Malchite green.
Pure ghee or butter	Vanaspati	Take 1 teaspoonful of melted ghee or butter with equal quantity of concentrated hydrochloric acid in a test tube and add to it pinch of cane sugar. Shake well for 1 min and let it stand for 5 min. Appearance of crimson colour in lower layer shows the presence of vanaspati.
Common salt	White powdered stone	Stir a spoonful of sample salt in water. Insoluble impurities will settle down.

### WORKSHEET-1

1. Detect the presence of adulterants in chilli powder, turmeric powder and common salt. Explain the procedure and record your observations in the following table

Food items	Material used for testing	Method Test report/Result

## WORKSHEET-2

**Title:** Procure a sample of butter and ice cream from a nearby market. Detect the presence of adulterants in these samples.

### **PRACTICAL 5 : CLEANING OF HOUSEHOLD ARTICLES/SURFACES**

There are different kinds of surfaces and articles viz. earthen, metals, wood, crockery etc. in our home which need periodic cleaning, otherwise these get blackened and lose their luster. Each surface and article needs special cleaning, cleaning agents/polishes.

The methods of preparing different cleansing material/polishes and cleaning procedure have been discussed in detail in 'Chapter 6' of Section A of your book. Please refer these and apply your knowledge for preparing different cleansing agents required for cleaning household articles mentioned in Worksheet I and II of this practical.

## **WORKSHEET-1**

Prepare multipurpose cleaner in your laboratory. Use it for cleaning different articles/ surfaces. Record your observations regarding its performance according to below mentioned points:

- Material required for preparation:
- Description of article being cleaned:
- Stepwise cleaning procedure followed:
- Observations regarding its performance:

## **WORKSHEET-2**

Prepare furniture polish and use it for cleaning your class room furniture. Write down the procedure for preparing and using this polish and evaluate its performance.

- Material required for preparing polish:
  
  
  
  
  
  
  
  
  
  
- Method of preparation:
  
  
  
  
  
  
  
  
  
  
- Stepwise procedure of cleaning/polishing:
  
  
  
  
  
  
  
  
  
  
- § Evaluation of performance on the basis of results:



## **PRACTICAL 6 : FLOOR DECORATION**

Rangoli is an important art originating from India, and is used to decorate mainly the floor and in some areas walls too. In some parts of our country, Rangoli is made daily at the entrance of the house. The front yard is cleaned and the drawings or paintings of rangoli are made prior to the start of any other chores of the household. Whereas in some areas rangoli patterns are drawn before the start of any religious ceremonies, functions or celebrations or festivals.

- **Material required for Rangoli**

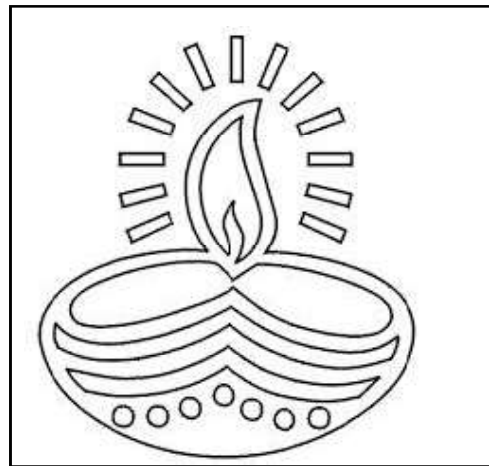
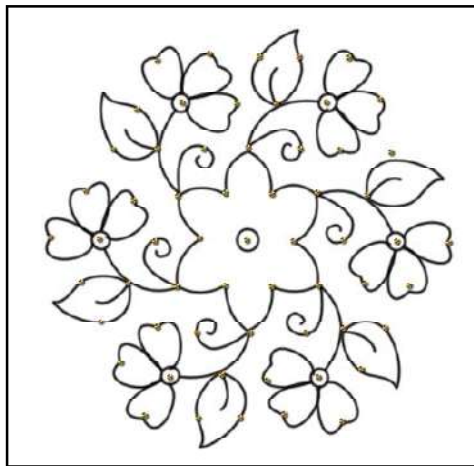
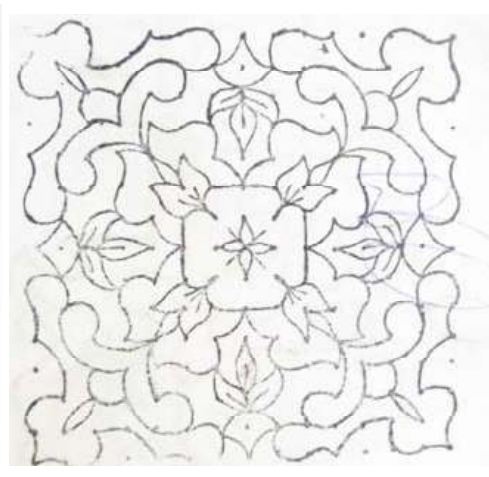
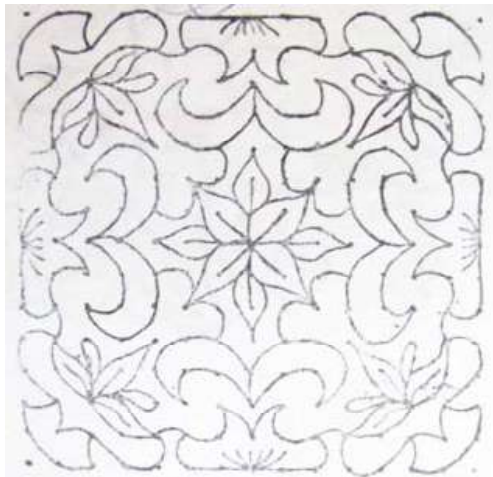
1. Rangoli powdered colors
2. Coloured rice grains and saw dust
3. Coloured sand
4. Flowers and leaves
5. Coloured chips
6. Poster colours
7. Coloured cotton ropes and threads
8. Rice powder paste. This paste can be used to make fine designs. These designs are made with hands and are called 'Alpana'.
9. Chalk for drawing design
10. Two feet long scale for measuring

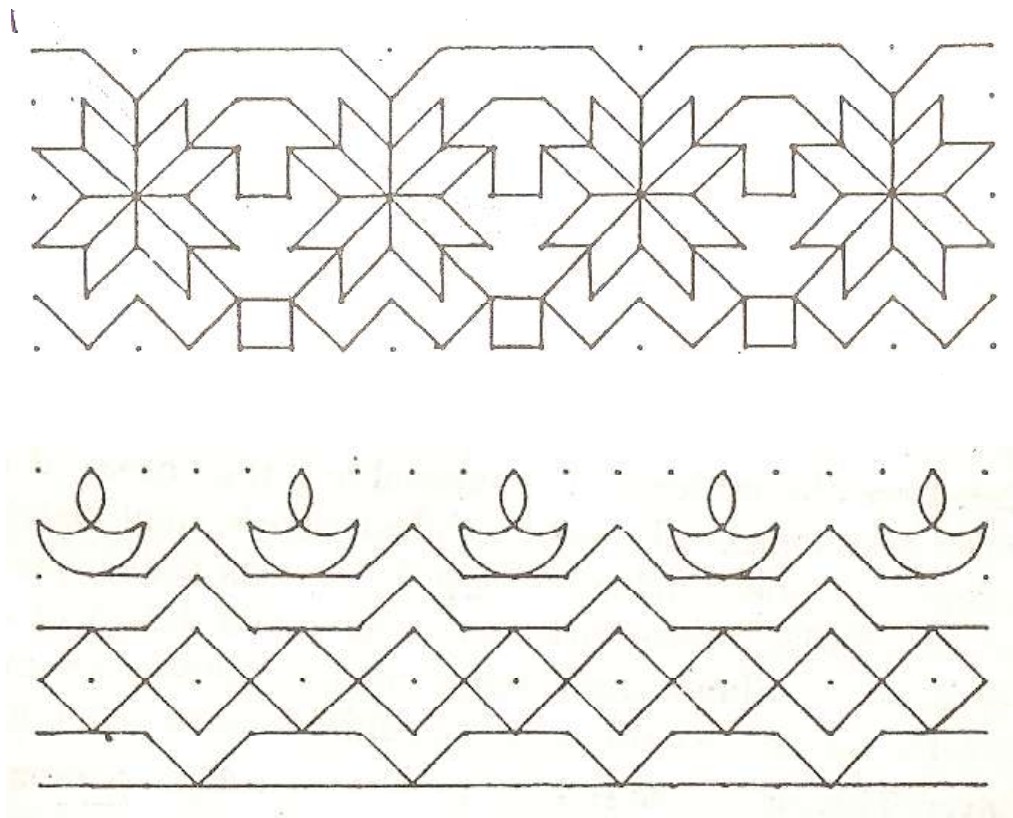
- **Rangoli Designs:**

The designs can be;

1. Birds/animals figure like peacock, elephant, sparrow, parrot etc.
2. Geometrical designs
3. Festival related designs like diyas, matka, deepshikha.

## RANGOLI DESIGNS







### **Guidelines for making Rangoli**

- Skill development can help in improving the quality of rangoli. Knowledge of geometry and symmetry gives better results in the making of rangoli. For free hand rangoli an axis of symmetry must be taken and this comes only with practice.
- The selection of colour is very important in rangoli. Either allied colours/or contrasting colours must be used. Use of too much of dark colours or dull colours like grey, blue or green certainly makes a less attractive pattern. The spreading of colours can be even if dusted through a metal-tea strainer. This gives a thin layer and gives the effect of a painting, particularly when one is doing a landscape.
- There should be balance in the rangoli patterns in terms of its various parts and the colours used. All parts of rangoli patterns should be proportionate to each other. The size of the rangoli pattern should also be in proportion to the room or small patterns in a big room will look dis-proportionate. The lines and designs of rangoli patterns should harmonise with each other. The texture of the material used should be in harmony with the texture of the surface on which it is made. Some amount of contrast in colour can be used to emphasize a particular section like the centre of the rangoli pattern. Emphasis can also be achieved through the use of accessories like lamps, diyas, statues etc. So by using different art principles, rangoli can be made more attractive, effective and decorative.
- In the centre of Rangoli or Alpana, according to the occasion, Diyas, Kalash, Coconut, mirrors, mango leaves and coloured stones can be kept.

### **Precautions:**

- Clean the floor before making decoration.
- The design should be drawn with chalk.
- Never use black colour in rangoli.
- There should not be any empty space.
- Keep in mind different colour schemes according to art principles.

## **WORKSHEET-2**

Collect designs and different materials required for making Rangoli and prepare a Rangoli in your school corridor.



## PRACTICAL 7 : FLOWER ARRANGEMENT

Flower arrangement is an art of organizing flowers, other plant materials and receptacles into compositions having harmony of form, texture and colour. To ensure a good creative design while arranging flowers, one should know why a design is good, not just how it is assembled. To achieve this thorough understanding of the basic principles is necessary. Unity and harmony are obtained by a five basic principles of Focal Point, Built-up, Balance, Relationship of Parts and Simplicity.

### Japanese Flower Arrangement / Ikebana flower arrangement

It is arranged on the theme of heaven, man and earth-represented by three main stems (sprays). The highest stem symbolizes heaven and it is arranged as central axis in the vase. Length is usually measured from one and one half to two and one half times the height of a tall container. The second height represents man. It gives the greatest width to the arrangement and is about three fourth the height of the tallest spray. The lowest spray denotes earth and the spray is about half as tall as the one signifying man and it extends very little beyond the diameter of the vase. It is placed opposite to the branch signifying man and thus balances it. In Japanese flower arrangements, usually odd number of flowers are used but the effect is of the three main branches-heaven, man and earth.



### Types of flower arrangements

**Line arrangement:** Arrangements in which the element of line is given more importance, is known as line arrangement. In this type only a small amount of plant material is used in order to display the beautiful lines of plant growth. Japanese flower arrangements are the example of line arrangement.



**Mass arrangement:**

It is a full bodied composition of large amount of plant material. The grouping as a whole and the colours are more important here than the lines. These may be compact, semi-compact or natural or stylized.

**Combination of line and mass arrangement:**

It is originated from America. This combination combines the best features of line and mass type arrangements. Design is emphasized in these arrangements which are usually stylized

**Diminutive/miniature flower arrangement:**

As the name suggests, everything in this arrangement is used in a miniature form. Small arrangements are made with miniature flowers in tiny containers like cream bottles, small dainty bottles of perfume etc.





### **Basic tools for flower arrangement**

Several sharp cutting tools are necessary for flower arranging. A very sharp paring knife or shears may be used to trim the stems, to pare off any leaves below the water line, and to scrape or split the stems to allow more water to be absorbed by the flower. In addition to this flower holders, needlepoint holders, foam/oasis are other basic tools needed while making an arrangement.

### **Tips for flower arrangement**

- Make a definite plan for any flower arrangement based on the purpose of room, space or location.
- Select containers, foliage and flowers that express mood of the room, occasion and colour scheme.
- Use clean vase and flower holder.
- Use flowers with stems of different sizes according to the size of the vase.
- Wipe large surfaced leaves lightly with a damp oily cloth to give them a brighter look.
- Arrange the tallest stems first and then others according to the type of arrangement i.e. whether mass, line or their combination.
- Large and bright coloured flowers should be used in small numbers and at the centre in tall vase and at lower height in wide vase.
- Small and short stemmed flowers may be easily arranged in groups and in low vases.
- Never mix fresh flowers with artificial flowers.
- Foliage with damaged edges should be trimmed.
- The pin holder / oasis (foam) should not be visible in a finished flower arrangement. Use pebbles, moss leaves or flat chips of stone to hide it.
- Keep the flower pot; filled with water and the bottom of the stem must always be dipped in water.
- Sprinkle little water on the flowers and leaves to make them look fresh.

## **WORKSHEET**

- Collect Flowers and foliage from nearby garden and make a fresh arrangement keeping in mind different principles of design.
- Paste pictures of different types of flower arrangements in your practical notebook.

## PRACTICAL 8 : TABLE SETTING & TABLE ETIQUETTES

### Table Setting & Decoration

There are two ways to set table for meals.

**Formal:** It is for a very occasional meal, mostly official one and is served to highly distinguished guests like foreign dignitaries, beaurocrats.

**Informal:** It is a family meal which can be followed in daily routine.

### Requirements for table setting

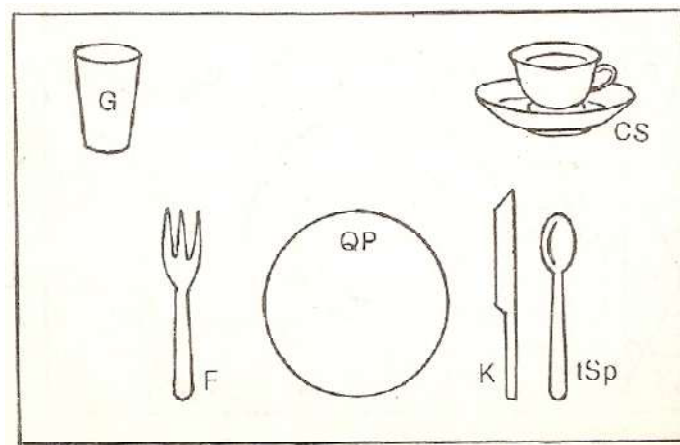
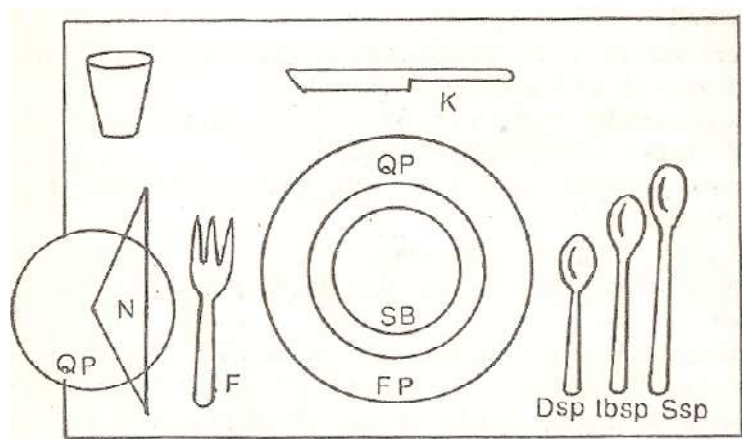
#### Table linen

- **Table Cloth:** It is must for a formal meal and optional for informal setting. It should be at least having 10 inches hanging edge all around table. It should be of subdued neutral color and design.
- **Table Mats:** These are used for informal routine table setting. These can be colourful but matching with rest of the table ware.
- **Table Napkins:** Most colourful item of table setting. Should be of good cotton material, well starched and skillfully folded. For informal meals one can go in for paper napkins too.
- **Crockery & Cutlery:** Preferably it should be out of a single set, dongs can be different but take care that these compliment the rest of the set.
- **Menu Card:** It should have items written in the sequence in which they are laid.
- **Flower Arrangement:** It should not be done with heavily scented flowers, dry and artificial material. It should be small in size to avoid any hindrance during conversation.

#### General rules for all kinds of table setting

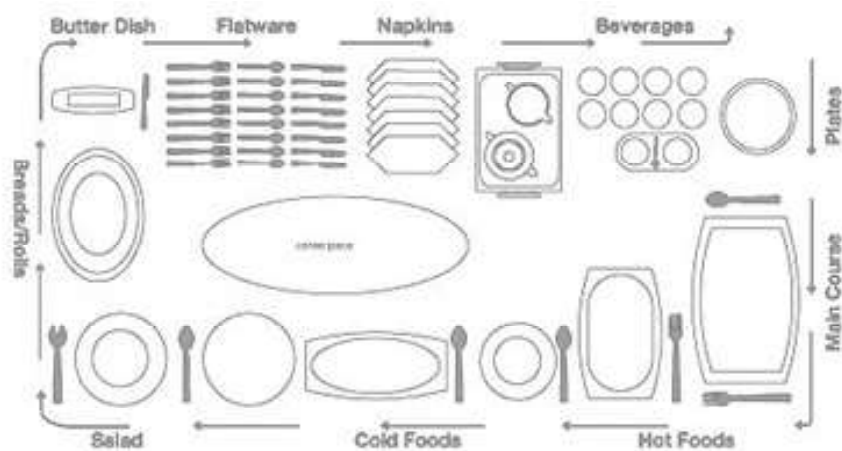
- Cutlery is used by diners from outside to inside. So see to it what all you are serving and in which sequence. Lay cutlery accordingly.
- Table mat should be laid at least 1" away from the table edge.
- If you are using only the service plate (commonly called full plate), then lay it in center of mat. If a quarter plate is required for meal (to keep chapatti/ bread/ bun/ puri etc.) then service plate is laid more towards right side.
- If only folk is needed for the meal, then keep it on the right side. If meal requires knife too, then keep knife on the right and fork on the left.

- Keep the cutting edge of the knife facing towards plate.
- Keep quarter plate next to fork.
- Keep napkin on the quarter plate/ service plate/ in glass/ in napkin ring/ on the extreme left side of the mat/ left side of the quarter plate.
- Keep water glass on the right side, just above the tip of the knife. But if katories are also needed for meal then keep katories on right and water glass on left.
- Dessert spoon is kept on the outer edge of service plate horizontally.
- Soup spoon is placed in same direction above the dessert spoon.
- Table spoon is laid next to knife.



### Buffet table setting

- Service plates should be kept in the beginning accompanied by napkins and required cutlery.
- Serving spoons should be kept on the right of each dish.
- Placement of dishes should be according to the sequence of eating.
- You cannot serve a dish which requires a knife.
- If it's a real large gathering, one can even lay crockery, cutlery, salads, pickles etc. on a separate table.
- Table mats and runners can also be used.
- Flower arrangement should be kept on the opposite side of service plates.



### Table manners / etiquettes

The purpose of table etiquettes is to bring comfort, convenience and discipline to the group around the dining table. Though the catering habits, traditions and mannerism vary from community to community and country to country yet a few table etiquettes are common for all.

- All older and more important persons to move first to the table.
- The chief guest should be seated on one end of the table.
- The hosts should take the seat on the right side of the chief guest.
- The second important guest should be seated on the other end of the table.

- The host can be seated on the right side of the second important guest.
- Pull out the chair gently and noiselessly and be seated comfortably.
- Enter the chair from right and leave from left.
- Take small bite of the preparation.
- Do not chew food with mouth open
- Do not scratch your hair while eating.
- Do not stretch your arms for non approachable dishes instead make a humble request for them.
- Do not lick fingers while having meals.
- Do not wash hands in the plate.
- Wipe your mouth with a napkin rather than cleaning it with hands.
- Before starting the meals spread the napkin on your lap. For heavy meals spread it full and for lighter meal spread it half.
- Before leaving the table, the napkin should be kept on the right side of the cover loosely without folding.
- Do not leave the table until everybody has finished the meal.
- Don't rise from the table without asking to be excused.

## **WORKSHEET**

- Paste 2 types of napkin folds in your practical notebook.
- Bring required cutlery from your home and do the table setting.

## PRACTICAL 9 : CRITICAL ANALYSIS OF LABELS

Label is a simple and inexpensive means of conveying information to consumers about the product they buy. Manufacturers mainly use three types of labels for their products;

- (i) **Descriptive labels:** These give some of the characteristics of the article in which the consumers are interested.
- (ii) **Informative labels:** These are designed to give detailed information about the product such as its manufacturing details, its performance, care.
- (iii) **Care labels:** These are usually seen on readymade and woollen garments items.

We must read labels carefully before purchasing any household/personal use items to safeguard ourselves from prevailing market frauds.



## WORKSHEET

1. Procure a label of any food product and identify its type.
2. Procure a label of any cosmetic item. Note down the information provided on it and evaluate it against requisites of good label.

**PRACTICAL 10 : PRACTICAL EXPERIENCE OF SEEKING  
REDRESSAL UNDER CONSUMER PROTECTION  
ACT, 1986**

For seeking redressal of your complaint you can write to District Consumer Dispute Redressal Forum under CPA, 1986. This Act is explained in Chapter 7 of Section A format for filing complaint or witting letter under CPA, 1986 is as under:

**Format for filing complaint under Consumer Protect Act, 1986**

Before the Hon'ble Distt. Consumer Disputes Forum at \_\_\_\_\_

Before the Hon'ble State Consumer Redressal Commission at \_\_\_\_\_

1. Full name and address of complainant
2. Full name and address of opposite party  

No. 1	No. 2
-------	-------
3. Particulars of goods purchased
  - (a) Items of goods, quantity, date of purchase and amount paid
  - (b) Whether complaint relates to defects in goods or loss or damage as a result of malpractice.
  - (c) Nature of defects and loss or damage and method of malpractice adopted.
4. Details of attempts made to get the matter settled and results thereof:
  - (a) Personal negotiations
  - (b) Written communication with party (attach copies)  
\_\_\_\_\_
  - (c) Application made to local dealer/Food inspector or MRTPC (Monopoly & Restrictive Trade Practices Commission)
5. Whether any other law/rules and regulations applicable

6. Documentary evidence
  - (a) Vouchers/bills
  - (b) Analytical reports/quick test results
  - (c) Witness, if any
7. Relief claimed
  - (a) To get defects remove
  - (b) To get replacement adverse health effects, injury, suffered due to the act of opposite party (justify with reasons the extent of compensation claimed for ill health or injury)

Place:

Date:

Complainant's Signature

## **WORKSHEET**


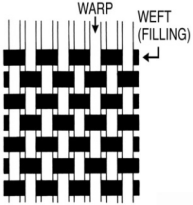
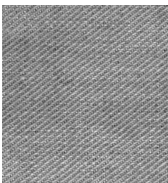
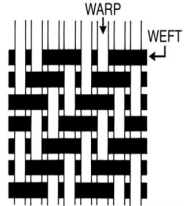

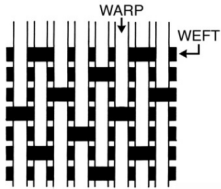

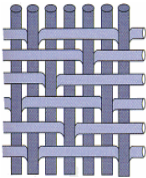
Prepare an application for seeking relief through suitable redressal forum for deficient after sale service for you vehicle.

## SECTION- B

### PRACTICAL -1 : TO IDENTIFY DIFFERENT FIBRES BY BURNING TEST

S.No	Fibre Name and Sample	Characteristics on Burning	Burnt Sample and Residue
1.	<b>Cotton</b>	Burns rapidly. Gives the smell of burning paper. The fibre burns completely and grey and fluffy ash is left behind.	
2.	<b>Wool</b>	Curls away from flame. Burns with great difficulty with a flickering flame. Gives the smell of burning hair. The residue left behind is large, lumpy and crisp ash.	
3.	<b>Silk</b>	Curls away from flame. Burns slowly with a flickering flame. Gives the smell of burning hair. The residue left behind is black crisp and crushable bead.	
4.	<b>Synthetics like Nylon</b>	Fuses and shrinks and finally the fibre melts down. Gives smell of chemicals while burning. The residue left behind is hard, tough, grey, uncrushable and round bead.	




**PRACTICAL -2: PREPARATION OF PAPER SAMPLES FOR PLAIN, TWILL, SATIN AND SATEEN WEAVES**

Fabric sample	Weave	Weaving pattern	Method
	Plain		For making plain weave, follow the instruction given below for basic warp structure with white sheet and start filling the black strips over one and under one white cut warp in the base sheet and continue doing this till the sample is ready
	Twill		For making twill weave, follow the instruction given below for basic warp structure with white sheet and start filling the black strips over two and under two white cut warps in the base sheet and in the next filling row move one step ahead continue doing this till the sample is ready
	Satin		For making satin weave, follow the instruction given below for basic warp structure with white sheet and start filling the black strips over one and under four white cut warps in the base sheet and in the next filling row move one step ahead continue doing this till the sample is ready
	Sateen		For making satin weave, follow the instruction given below for basic warp structure with white sheet and start filling the black strips over four and under one white cut warps in the base sheet and in the next filling row move one step ahead continue doing this till the sample is ready

**Instructions for making paper samples of weaves:**

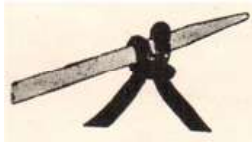
Buy glazed sheets in any two colours from stationary shop e.g in white and black colours. Now cut both sheets measuring 12 cmx12 cm. Take white sheet and leaving margins of 1 cm on all the four sides with pencil, draw a square in the sheet. Now, at the distance of 1cm, draw vertical lines on whole white sheet . Take a paper cutter or blade and cut these vertical lines leaving 1cm paper all around uncut. Take black paper and cut strips of this paper into size of 1cmx 12 cm. For making all paper weaves , the procedure up to this step is same. Difference is only of the filling pattern with the black strips. This is the basic warp structure to be used for all weaves given above. Make paper weaves and paste in your practical note book.

**PRACTICAL -3 : PREPARATION OF KNITTING SAMPLE- KNIT STITCH, PURL STITCH, COMBINATION OF KNIT AND PURL STITCH.**

Stitch	Sample	Method
<b>Knit Stitch</b>		Take baby wool and knitting needles and cast on 20 loop stitches. Knit these stitches in the first row and when all the stitches will be done , then purl stitch all the loops on the wrong side. Follow this till the sample of required length is ready.
<b>Purl Stitch</b>		Take baby wool and knitting needles and cast on 20 loop stitches. Purl knit these stitches in the first row and when all the stitches will be done, then again purl stitch all the loops on the wrong side. Follow this till the sample of required length is ready.
<b>Knit and purl (Combination)</b>		Take baby wool and knitting needles and cast on 20 loop stitches. Start knitting one stitch knit and second one purl and follow this till all the stitches will be done, then on the wrong side again follow the same pattern but the stitch which was knit on the right side will become purl on the other side. Follow this till the sample of required length is ready.



SLIP KNOTS





KNIT STITCH



PURLSTITCH

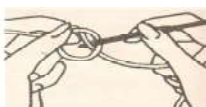


**PRACTICAL -4: PREPARATION OF TWO SAMPLES OF CROCHETING.**

Sample	Method
	Take a crocheting hook and ball of wool or thread. With hook start the first loop and then start making chain with the loops and continue chain of stitches. Make desired pattern.
	Take a crocheting hook and ball of thread or wool. With hook start the first loop and then start making chain and then treble .Make desired pattern.



First loop in crochet




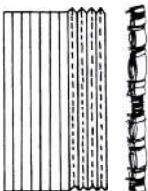





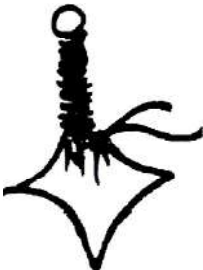

Formation of chain



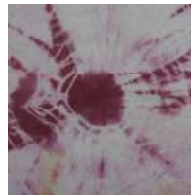
Trebles

*Instruction : Prepare and Paste two samples of crochting in your practical notebook*

**PRACTICAL -5 : PREPARATION OF TIE AND DYE SAMPLES USING DIFFERENT TECHNIQUES.**

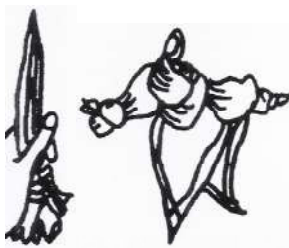
	Plain sample	Techniques used	Sample after dyeing
1.			
		<b>FOLDING</b>	
2.			
		<b>MARBLING</b>	
3.			
		<b>BINDING</b>	

4.



### TWISTING AND COILING

5.



### KNOTTING

#### Instructions:

Take five samples of cotton fabric (desized) measuring 8'8" in size. Tie five different techniques of tying and dyeing in different colours. Follow the guidelines given in dyeing procedure of chapter 3. Paste these dyed samples in practical note book.

**PRACTICAL -6 : PREPARATION OF TWO SAMPLES OF BATIK IN AT LEAST THREE DIFFERENT COLOURS ON COTTON FABRIC.**

**Plain sample**

(1)



**Application of wax**



(2)



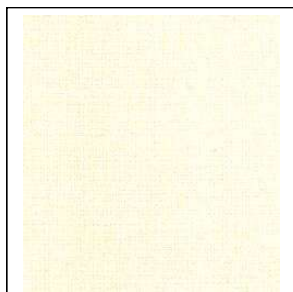
**Instructions:**

Take two samples of cotton fabric (desized) measuring 8×8" in size. Refer Chapter 3 for applying wax and the printing procedure. Prepare the samples and paste these samples after printing in a practical note book.

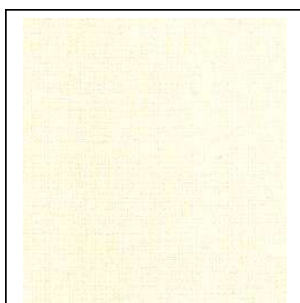
**PRACTICAL - 7 : PREPARATION OF TWO SAMPLES OF BLOCK PRINTING ON A COTTON FABRIC IN AT LEAST TWO DIFFERENT COLOURS.**

**Plain sample**

**(1)**



**(2)**

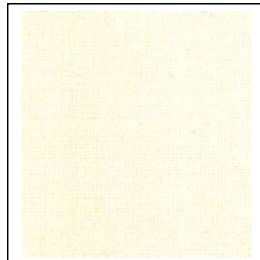


**Instructions:**

Take two samples of cotton fabric measuring 8×8" in size. Prepare blocks at home by carving/cutting vegetables like bhindi, onion, potato etc. and by using fabric paint apply these blocks on the sample. Place the fabric to be printed on a firm printing table cushioned with an old blanket by following the process as given in Chapter 3. Paste these printed samples in a practical note book.

## **PRACTICAL - 8 : PREPARATION OF SAMPLE OF STENCIL PRINTING**

**Plain Sample**



**Sample after printing**

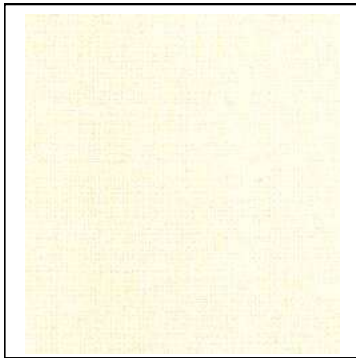


### **Instructions**

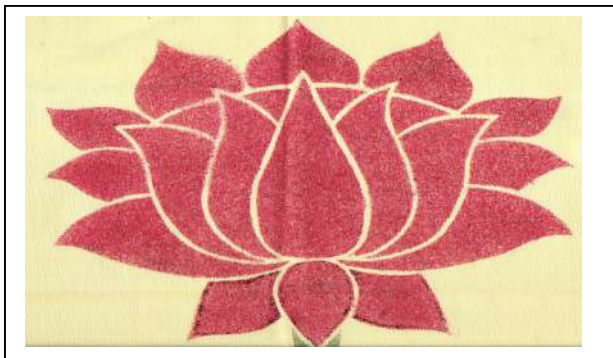
Take two samples of cotton fabric measuring 8" x 8" in size. Prepare the stencil by using an old X-ray sheet. Use it for stencil printing by using fabric paint or printing paste as method given in chapter 3 . Paste the printed samples in a practical note book.

## **PRACTICAL - 9 : PREPARATION OF SAMPLE OF SPRAY PRINTING**

**Plain Sample**



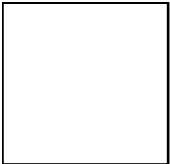
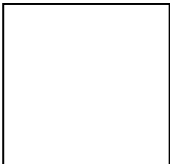

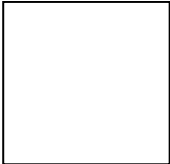

**Sample after printing**



### **Instructions**

Take a sample of cotton fabric measuring 8"x8" in size. Prepare the stencil by using an old X-ray sheet. Use it for spray printing by using fabric paint or printing paste with the help of an old tooth brush as method given in chapter 3 . Paste the printed samples in a practical note book.

**PRACTICAL - 10 : REMOVAL OF STAINS OF BALL PEN, BLOOD, GREASE, TEA, CURRY**

Sample Of Stain	Name of stain	Method
	Ball pen	Refer Text
	Blood	Refer Text
	Grease	Refer Text
	Tea	Refer Text
	Curry	Refer Text



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