

216

# Learner Guide



Secondary Course

# Home Science

(Human Ecology and Family Science)



NATIONAL INSTITUTE OF OPEN SCHOOLING

**Secondary Course**

**Home Science - 216**

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**Learner Guide**

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**NATIONAL INSTITUTE OF OPEN SCHOOLING**

**(An autonomous organisation under MHRD, Govt. of India)**

**A-24-25, Institutional Area, Sector-62, NOIDA-201309 (U.P.)**

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## *Message from Director*

*Dear Learner,*

*Greetings!*

*It has been our motto to help the self learners attain their educational goals. The Learner's Guide has been designed for the first time to help you learn better. The important points of the study materials have been highlighted in this guide and would give you a glimpse of the whole course at one go. It would assist you in revising the study material in a short time.*

*I feel this study guide, apart from deepening your understanding of the subject, will also help you in enhancing your performance in the examination.*

*I hope you will refer to it for revision and find it useful.*

*Best wishes for a bright future and prosperous life!*

*(Dr. Kuldeep Agarwal)  
Director (Academic)*

## Message from Assistant Director

Dear Learner,

Now your problems will be solved in a click,

As NIOS brings the knowledge, at your finger tip!

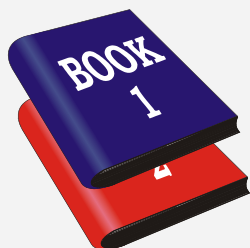
Appreciating your need for more support NIOS brings the magic of technology to your door step!! “Mukta Vidya Vani” our web based live PCPs supplement and complement the Self Learning Materials. It gives you an opportunity to interact with the experts of your subjects. You can clear your queries and doubts by calling on our TOLL Free Number **1800 180 2543**. You can also call on **0120- 4626949**. The time schedule of the live programmes is given below for reference. If due to any reason you miss the live PCPs you can hear the recorded versions in repeat cycle or at Audio on Demand.

We hope that you will access these ICT options for better understanding of content, concepts and clarification of your doubts. For listening to live or recorded PCPs on Mukta Vidya Vani, you can directly log on to [www.nios.ac.in](http://www.nios.ac.in) and click on Mukta Vidya Vani. You can also log on to <http://www.nios.iradioindia.com/>. NIOS also provides video programmes which are telecast through Doordarshan educational channel Gyandarshan and audio programme through Gyan Vani (FM) channel at 106.5 MHz

ICT Options	Time Slots	
Mukta Vidya Vani	02.30 PM – 5.00 PM Monday-Friday 10.30AM – 12.30AM Saturday-Sunday	Recorded 24X7
DD 1	05.02 AM – 05.25 AM Every Friday	
Gyandarshan	06.30 PM– 07.00 PM Every day	04.30 PM-05.00 PM
Gyan Vani (FM )	08.30 AM–09.00 AM Every Friday, Saturday and Sunday	Repeat broadcast on Friday, Saturday and Sunday

We look forward to your greater participation and interaction!

Dr. Rachna Bhatia  
Assistant Director (Academic)



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# INTRODUCTION

The course of Home Science is designed to enable the NIOS learners understand and value their various roles in the society, which includes their special place in the family; profession and community. In the course, Home Science is explained in a comprehensive way to ensure that the learners get immense opportunities to learn the art and science of not only managing home but are also motivated to practice various professional skills.

This book covers five important areas of Home Science—Food and Nutrition; Communication and Extension; Resource Management; Fabric and Apparel Sciences and Human Development. We have tried to define and give a glimpse of the uniqueness of each area mentioned above. This will not only help learners to effectively deal with everyday life but also lay the foundation for building a bright career. The main goal of the Learner’s Guide is to initiate the thinking process and enable the learner to co-relate the content with real- life situations.

## Objective of the Learner’s Guide

1. To facilitate revision of the study materials in a short time.
2. To strengthen the learning of the content material.
3. To support the learners to enhance their performance in the examination.
4. To highlight the important concepts and points covered in the course.

## Tutor Marked Assignments (TMA)

- **Significance of Tutor Marked Assignments (TMAs) for you**

Needless to say that there is a great significance of the Tutor Marked Assignments (TMAs) in open learning system. In fact, TMAs are an essential and integral part of this system. You will get an opportunity to come into contact with your tutor or teacher through TMAs. It provides you an opportunity to know your shortcomings and

improve upon the answers. The suggestions/ directions of the tutor will help you to make the required improvements in the assignments submitted. This would help you to perform better in your examinations.

- **How to prepare good assignments**

While preparing assignments, focus on the question. The questions usually cover the content of a number of lessons. Give required weight age to the content from all the lessons. Write the assignments giving headings and sub-headings. Make sure that all the important information is covered. The assignments should be in conformity with the prescribed format. It should neither be too lengthy nor too short.

- **Responding to the comments of the Tutors**

Tutors comments will enable you to improve and update your knowledge of the subject. It will help you to correct or rectify your mistakes or lapses. The comments of the Tutors will also help you to prepare yourself for better performance in the



examinations. It is, therefore, imperative and in your interest to respond positively to the comments of Tutors.

## Preparing for the examinations

- **Positive side of examinations**

The positive side of examination is that it provides the examinee (the learner) an opportunity to assess his/her knowledge of the concerned subject and also the level of his competence and capability.

- **Myth about examinations**

The myth about examinations is that it is the only and sole yardstick to measure, assess and judge the ability, calibre and competence level of the examinee. The truth or reality is that out of the many other techniques, examinations are only one such technique.

- **What to avoid**

While preparing for examinations avoid putting unnecessary stress on your mind to avoid fear of examination. Do not waste much time in cramming all the details. Concentrate on the main points of each lesson or the study material. We have tried to bring these points to you through this Learners' Guide.

- **Revising for examinations**

Revising all that you have studied is a must while preparing for the examination. Revision provides an opportunity to recall all that has been studied so far. It also enables you to recollect at least the main points of each lesson or the study material.

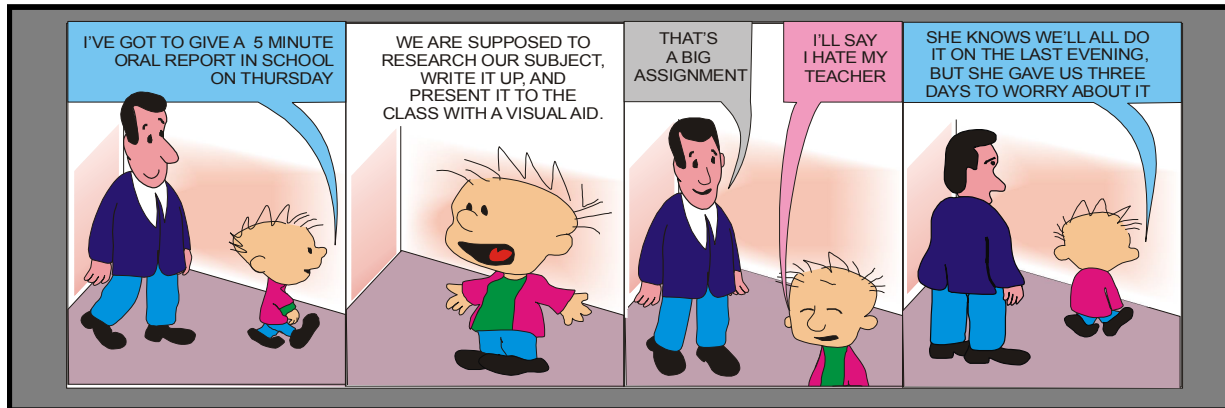
- **Tips for preparing for examinations**

The time before examinations is most crucial for every learner. Some tips to help you better prepare for examinations are:

- (i) Do revise your lesson/study material
- (ii) Maintain the required level of self confidence
- (iii) Do not allow yourself to suffer from examination fear
- (iv) Do reach your examination centre well in time
- (v) Keep in mind that you have to complete the answers of all the questions well before the allotted time so that there is enough time for revision of the answer book. Ensure that all the questions have been answered.

To provide you with an opportunity to get hands on experience and learn by practically performing activities, you are provided with a Practical Manual. There are 17 practicals. Along with each practical, guidelines/ steps are given for performing them. You can observe your recordings in the space provided in the manual itself. The manual also consists of alternate practical options suitable for learners with disability. It's through practicals that the learners get an opportunity to develop and enhance their life skills.

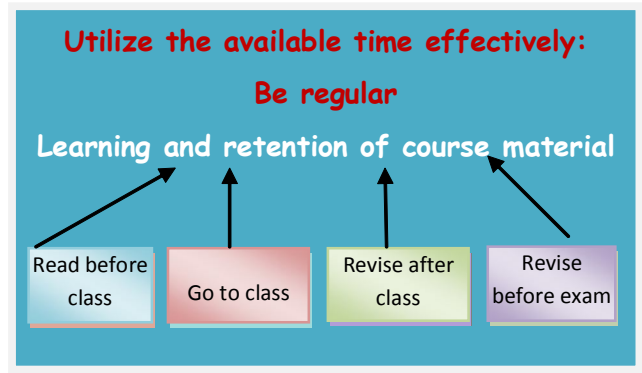
# TIME MANAGEMENT BEFORE AND DURING EXAMINATION



Does it sound familiar? Most of students try to postpone the work till the last minute and do poor work while get stressed. Will it help if you plan your time and work systematically?

Ever heard the saying, “Manage your time, or it will manage you”? This is true. On the other hand, you can’t really manage time, because it is at no one’s command—everyone has 24 hours a day, 168 hours a week. So, you can only manage yourself around the time.

Parkinson’s Law: Work expands to fill up the available time! You can do lot many tasks if you plan them well.



Benefits of time management	
Reduces stress	Makes life balanced
Preparing over a period of time is less stressful than trying to cram an entire course in a few hours before the exam.	Studying all the time does not mean that you are a ‘good’ student. You also have other things to do. You must have time to relax. It is important for all students.
Increased output	Meet goals
Working long hours lead to slow speed and tiredness. Utilise your time more effectively. Plan to complete tasks within specific time period.	Setting goals is a powerful way of motivating yourself to work. It also helps to reduce postponing and stressing over unfinished work.

Studying for exams: Tips for better time management

## Plan in small blocks

For example, plan for an hour. You will only be able to really concentrate for a maximum of 45 minutes, so plan a 15-minute break after that.

## Plan with exactness

- Indicate exactly what you plan to achieve within that time.
- Example of planning without exactness:
  - o Home Science: 2- 4 pm
  - o Biology: 5-7 pm.
- Example of planning with exactness:
  - o Home science: Chapter- Functions of Food;
  - o Biology: Chapter- Respiratory System

### Plan with the end in mind

- Start from your goal. Check your exam time table and work backward from there.
- To make to the exam, set specific targets to complete by each week.

### Need a weekly planner?

#### Plan with your strengths in mind

- When are you most productive, or at your mental best? Is it morning, afternoon or night? Use these times to study your most difficult subjects.
- Use your down times to do more mechanical tasks such as washing, cooking or shopping (but don't get carried away!).

You probably would not need to divide your time equally between all your subjects. In deciding how much time you want to allocate for each subject, consider the following:

- o How well do you hope to do?
- o How difficult you perceive the subject to be?
- o Amount of study you have done during the term.
- o Weightage of the exam.

### Get started with a blank daily planner

#### Plan with flexibility

- You shouldn't plan a time-table that's so packed that it leaves you with no cushion time to perform everyday activities (you still need to eat, rest and take bath!) and to deal with unforeseen emergencies.

#### Reward yourself!

- After you have accomplished each of the tasks you have set out to do, give yourself a break—go for a walk, watch some television or catch up with your friend.

### Writing exam? Managing time

#### Allocate your time

- Look at how marks are allocated. The number of marks given to a particular question will give you an indication of how much time to spend on it.

Look at:

- o the number of marks per question
- o how they are distributed
- o how many questions you have to answer

Ration your time accordingly.

Choose 'easy' or 'difficult' questions.

### Deciding the order of questions to answer?

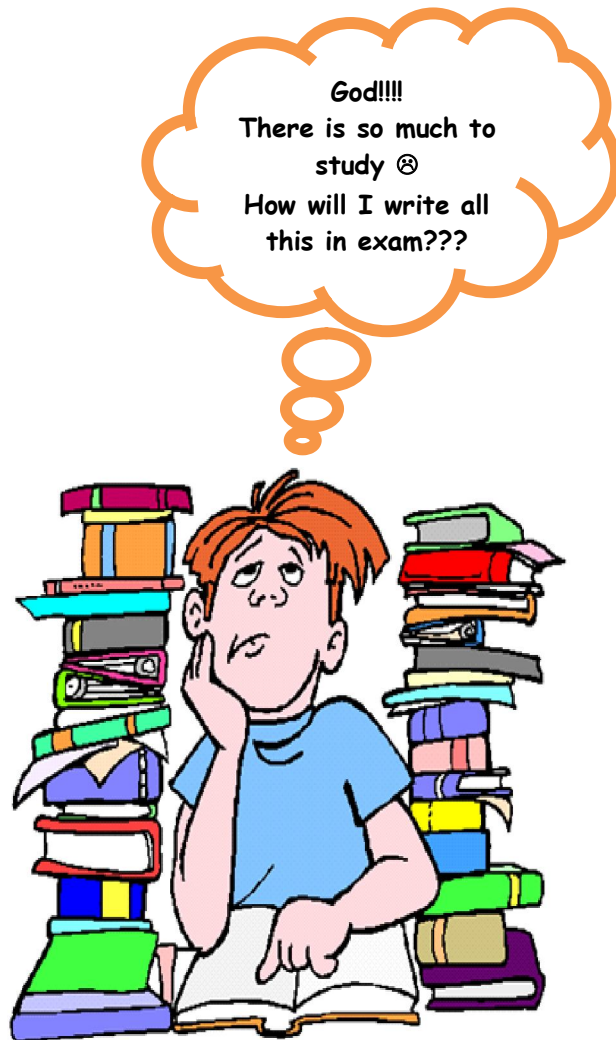
- It's an individual preference. Some students like to answer short answer questions first and there are others who like to answer the longest question first.
- If you want to start with the longest, then time it. Do not be tempted to spend extra time.
- Leave your worst question for the last few minutes. BUT ensure you leave yourself enough time to answer it.
- Devote any extra time to your best questions.
- **Make a note of how much time you should give to each question.** Once you decide on your time outline, stick to it. Watch the clock and once the allocated time has elapsed, stop and move onto the next question.
- **If you haven't finished, leave some space in the exam booklet.** If you have any extra time at the end (or during the revision period) you can return and answer it more completely.
- Do leave time to check and polish your answers at the very end.

#### Are you panicking or tired?

Allow yourself brief rests in the exam. Loosen up physically, stretch (if you can do so without feeling awkward), take several deeper breaths, shut your eyes when you are thinking.

- Don't leave the exam early. Use extra time to revise or to think more deeply about one of the harder questions. Make use of all the allocated time—it's worth it.
-

## HOW TO ANSWER QUESTIONS



### Strategies for answering questions

1. Read the directions carefully.
2. Read the entire question paper.
3. Plan your time accordingly.
4. Jot down anything that comes to your mind while reading the question, so that you do not forget it.
5. Before answering, read the question thoroughly. Number the parts if any and make an outline of the answer so that you do not miss any point.
6. Restate the question as the first line of your answer.
7. Do not go into irrelevant details.
8. If you are unsure or get stuck on a question, move on.

Struggling to answer a question you are not sure of wastes time and increases stress. You can come back to it later after you have completed the rest of the paper.

### Types of questions

1. Multiple choice
2. Very short
3. Short
4. Long or essay type

While the first three question types are considered the easiest and most straight forward, it is equally easy to make careless mistakes and errors. The strategies given earlier should be kept in mind at all times.



Questions which require longer answers, whether in the form of paragraph or essay, focus on direction words. A list of possible words and what they mean is given below:

### 1. Words asking you to state everything you know about the question

- **Describe**-Give an account of; tell about; give a word picture of e.g. Describe the temple architecture of southern India
- **Discuss**-Talk over; consider from various points of view; present different sides of e.g. Discuss the observational approach in understanding psychological processes
- **Review**-Examine a subject critically, analyzing and commenting on the important statements to be made from it e.g. Review the economic condition of India before Independence
- **State**-Present the main points in brief, clear sequence, usually omitting details, illustrations or examples
- **Explain**-Make clear; interpret; tell 'how' to do

### 2. Words asking for main ideas

- **Enumerate**-Give the points concisely one by one
- **List**-Write an itemized series of concise statements
- **Outline**-Organize a description under the main points and sub-points omitting major details
- **Summarize**-Give the main facts in a condensed form i.e. in one or two paragraphs
- **Trace**-Describe the progress, development or events from some point of origin e.g. Trace the growth of Indian nationalism from nineteenth century onwards
- **Analyze**-Discuss the whole in terms of its part e.g. Analyze the working of the Indian parliament

### 3. Words asking for specific characteristics or certain limited facts

- **Compare**-Bring out the points of similarity and the points of differences
- **Contrast**-Bring out the points of difference
- **Define**-Give the meaning of a word or concept; place it in the class to which it belongs and set it off from other items in the same class
- **Diagram**-Give a drawing, chart, plan or graphic answer
- **Illustrate**-Use a figure, picture or diagram to clarify a problem
- **Relate**-Show how things are connected or correlated within the answer
- **Interpret**-Translate; give example of; comment on a subject

### 4. Words asking for your supported opinion

- **Criticize**-State your opinion of the correctness or merits of an item or issue. Criticism may approve or disapprove
- **Evaluate**- Give the good and bad points; give an opinion regarding the value of, discuss the advantages and disadvantages
- **Justify**-Prove or give reasons for decisions or conclusions
- **Prove**-Establish that something is true by citing factual evidence or giving clear, logical reasons

#### Length of answers

How much to write is most often given in the question. Therefore, reading the directions is absolutely essential.

- In some questions especially essay type, the very fact that it has the maximum marks assigned to it, points to a long answer.
- Where it is clearly stated to write a paragraph or two lines, this should be adhered to.
- Word limit if given is also an indication and should be followed.

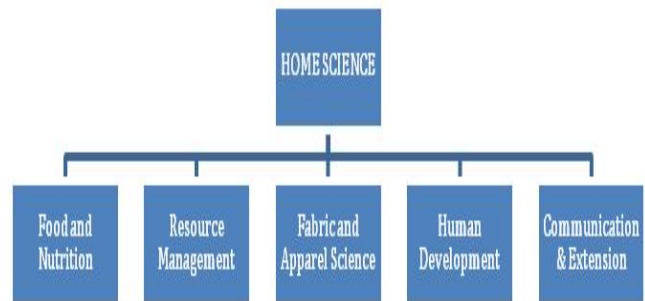
## WHAT IS HOME SCIENCE?

L.No	Title of Lesson	SKILLS	Activity
1	What is Home Science?	Interpersonal Relationship, Effective Communication, Critical Thinking, Creative Thinking, Problem Solving and Decision Making	Establish the relevance and importance of Home Science for both men and women

### Summary

Home Science is concerned with the home, health and happiness of all the people living in it. Home Science draws its content from courses in both Science and Arts. Home Science means the art of managing your resources efficiently. It is the science of achieving a healthy and happy home as well as a successful career. In the lesson we learnt that Home Science has five major areas of specialisation, which are as follows:

Wage-employment and Self-employment are two different types of employment that a person can opt for after the completion of academic courses at the graduate and post-graduate level. Wage-employment means when you work for another person and receive wages or salary for your services. On the other hand, Self-employment is when you are the owner of an enterprise which you run and finance yourself.



### Principal Points

The combination of Science and Arts in Home Science helps in following:

- Interpersonal communication amongst your family members
- Managing your resources well
- Providing you the right tools to solve problems
- Improving your personal and professional life
- Learning and enhancing your skills thus improving the economic conditions of your family
- Understanding the environment around you

### Build Your Understanding

Home Science is for BOYS and GIRLS!

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

### What's Important to Know?

Home Science is a multidisciplinary subject. It draws content from various disciplines of Science and Arts.

This combination helps to understand the dynamics of family, food, house, clothes, resources, environment and other skills that will lead to a successful career.

### Extend Your Horizon

Traditionally, Indian society had demarcated work for both men and women. But with the changing social and economic environment, the gender-based stereotypical roles do not hold relevance any more.

**Identify six stereotypical occupations where you have observed the change.**

### Evaluate Yourself

1. You are cooking a meal. How can you apply the Arts and Science of Home Science in it? Illustrate your answer.
2. You love children. What courses of Home Science will you opt for? What employment opportunities will be available to you?

### Maximize your marks

Practice the activities given in the chapter.

Observe the household activities that your parents perform on regular basis. Ask them if the work can be done by both the genders or not.

### Did You Know?

Job opportunities in Home Science!

#### Food and Nutrition

- Food Science
- Clinical Nutrition and Community Nutrition
- Catering
- Food Preservation/ Bakery and Confectionary

#### Resource Management

- Interior Decoration
- Arts and Crafts classes
- Event Managers

#### Fabric and Apparel Science

- Dress Designing
- Garment Construction
- Textile Designing

#### Human Development

- Child Welfare
- Care for Special Children
- Adolescence and Family Guidance
- Care for the Elderly
- Crèche Staff/Owner
- Day care/ after day care teaching

#### Communication and Extension

- Work in Development Organisations
- Counsellors
- Trainers and Facilitators for Capacity Building
- Media Production and Management
- Public Relations
- Programme Planners

## FOOD AND ITS NUTRIENTS

L.No	Title of Lesson	SKILLS	Activity
2	Food and its Nutrients	Critical Thinking, Creative Thinking, Problem Solving and Decision Making	Understanding the importance of food in life

### Summary

Food not only gives energy but also helps in growth and repair. It gives us strength to fight against diseases and helps our body to function normally. Some of our social and emotional needs can also be fulfilled by food.

Food is made of chemical substances called nutrients. They are carbohydrates, proteins, fats, minerals, vitamins, fibre and water. While the first three are required in fairly large quantities, minerals and vitamins are required in very small quantities. Each of these nutrients has a specific role in building our body. Fibre and water do not help to build the body but are crucial for the normal functioning of the body.

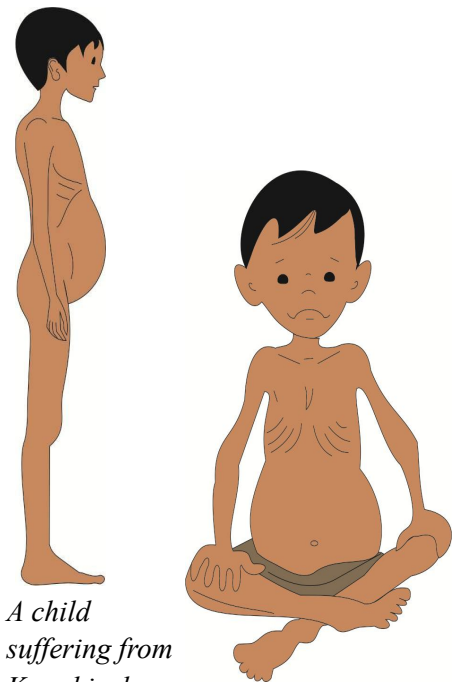
The intake of each of the above nutrients in the recommended amounts is very important. Complete absence or reduced intake of any of these nutrients in our daily diet can cause various deficiency diseases. Often this deficiency can be reversed if the missing nutrient is detected early and adequately replaced.

If we follow the thumb rule of eating a variety of foods we will be able to include all the nutrients in our diet and thus ensure good health for ourselves.

### Principal Points

Deficiency diseases occur when a particular nutrient is absent from our food for a long period of time.

- Kwashiorkor is due to insufficient protein intake.
- Marasmus is due to the deficiency of both carbohydrates and proteins in the body.
- Night-blindness is caused due to the absence or lack of vitamin A in our daily diet. Those suffering from night-blindness cannot see in dim light.
- Anemia is caused due to the deficiency of iron resulting in tiredness and restlessness.
- Beri-beri is caused due to the deficiency of vitamin B. Those suffering from beri-beri may not feel hungry and will have a sore mouth.
- Scurvy is caused by absence or lack of vitamin C. It results in the swelling and bleeding of gums and slow healing of wounds.
- Goitre is caused due to the absence of iodine in diet resulting in a swollen neck.



*A child suffering from Kwashiorkor*

*A child suffering from Marasmus*



### Build Your Understanding

- Fiber adds bulk to stool and prevents constipation. It is mainly present in foods from plants.
- Water keeps the body temperature constant, removes waste products from the body in the form of urine and transports food in the body.

### Did You Know?

- Non-vegetarians often complain of constipation because non-vegetarian food has poor fibre content.
- In summer we need more water to make up for its loss due to sweating.
- Fats are a concentrated source of energy. They should be used with discretion. Excess intake may lead to obesity.
- Recommended mineral intake ensures healthy bones, teeth, muscles and blood.
- Milk must be an integral part of the diet during childhood and adolescence because bones grow rapidly during these stages..
- Vitamins are of two types—fat soluble vitamins (vitamins A, D, E and K) and water soluble vitamins (vitamins B and C). Vitamins cannot be produced by our body hence they must be taken in the diet daily. Some amount of fat is required for absorption of fat soluble vitamins.

### Extend Your Horizon

- Change a plain aloo tikki into a nutritious tikki.
- Plan a breakfast meal that includes carbohydrate, protein, fat, any one vitamin and one mineral.

### Maximize your marks

- Read the case studies carefully and perform activities suggested in the lesson. It will help in a better understanding of the topic.
- Read the functions and sources of nutrients.
- Read the deficiency diseases.

### What's Important to Know?

Food and its importance

For healthy living!

- Food gives us energy to work.
- Food helps in the growth and repair of tissues.
- Food gives strength to fight against diseases.
- Food helps the body to function normally.
- Food satisfies hunger.
- Food has always been a central part of our social existence. It helps to relax and create a friendly mood. People take special care in planning and cooking food for social occasions.
- Food satisfies our emotional needs. These include a sense of security, love and attention. Familiar food items make us feel secure.

### Evaluate Yourself

1. Anushri does not like to have green leafy vegetables. List down three reasons why green leafy vegetables are considered good for health and why she must include them in her diet?
2. Your grandmother often suffers from fractures. Which nutrient do you think she is lacking in? Suggest what foods she should have to avoid such situation further?

## FOOD GROUPS

L.No	Title of Lesson	SKILLS	Activity
3	Food Groups	Interpersonal Relationship and Effective Communication, Problem Solving and Decision Making	Understanding of all food groups for effective meal planning

### Summary

Food groups made on the basis of nutrient content are present in each food. Nutrients are required for energy, body building, repair of tissues and protection from diseases. Knowledge of food groups is essential for meal planning. If we just choose one food item from each food group, our meal will be balanced, healthy and well suited to the needs of each member. There are various factors affecting meal planning that enable us to plan a nutritional meal.

Sl.No.	Nutrient	Function	Food
1.	Carbohydrates and Fats	Energy giving food	cereals, fats, sugar
2.	Proteins	Body building food	pulses, milk, meat, chicken
3.	Vitamins and Minerals	Regulatory and Protective foods	fruits and vegetables

### Principal Points

Group 1	Group 2	Group 3	Group 4	Group 5
<b>Cereal, Grains</b>	<b>Pulses and legumes</b>	<b>Milk, eggs, meat products</b>	<b>Fruits, vegetables</b>	<b>Fats, sugar</b>
Carbohydrates, Protein, vit-B, Iron, Fibre	Protein, Carbohydrate, Vit- B, Fiber	Protein fat, Vit-A calcium	Vit-A and C, Fibre, Calcium, Iron	Carbohydrate, Fat

### Build Your Understanding

Balanced diet is the combination of one food item from each group. This diet will contain all the nutrients in adequate quantity as per the needs of the body.

Meal planning is the process of planning each meal such that our body gets all essential nutrients every day. Factors that affect meal planning are:

- Age
- Occupation
- Seasonal availability
- Sex
- Budget
- Weather
- Physiological condition

**What's Important to Know?**

**Food Management Skills**

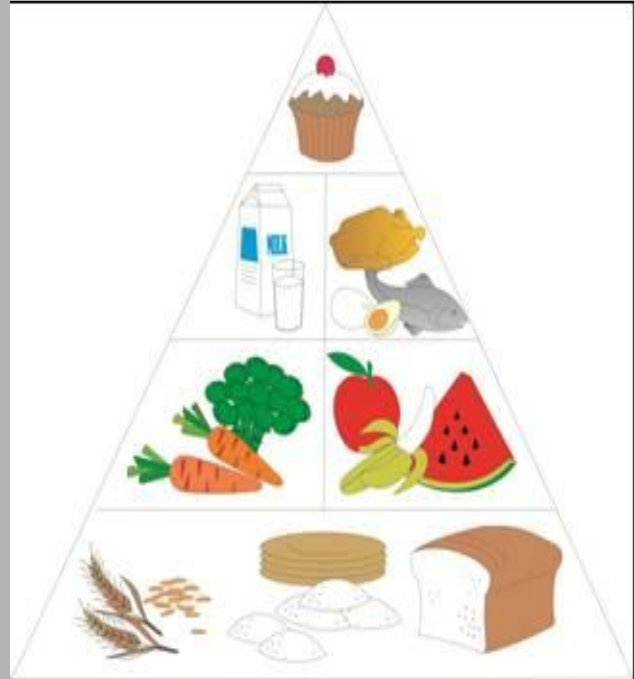
- Provide variety
- Fulfil nutritional needs
- Use underutilised foods
- Creative use of leftover food
- Consider likes and dislikes
- Six servings of balanced meal

Example of a planned meal:

S.No.	Five Food Group	Meal 1	Meal 2
1	Cereals	chappati	rice
2	Pulses	arhar dal	urad dal
3	Milk/ Eggs/ Flesh Foods	paneer curry	chicken curry
4	Fruits and Vegetables	potato and bean subji, salad, fruits	potato pea subji, salad, fruits
5	Oil/ Ghee/ Sugar	used for cooking	as sweetner

**Did You Know?**

If you remember this pyramid you will never go wrong in planning meals.



**Extend Your Horizon**

Your grandmother is suffering from osteoporosis. Plan a meal for her. Which nutrient would you advise her to have everyday or often?

**Maximize your marks**

Read the case studies carefully and perform activities suggested in the lesson to understand the topic clearly.

**Evaluate Yourself**

1. The doctor has advised you to take a high protein diet. What food items will you include in your daily meal?
2. When cereals are combined with pulses what kind of nutrients are supplemented?
3. Which vitamin is found least in refined cereals?
4. What kind of foods are the main sources of energy?
5. What is the difference between complete food and balanced diet?

## METHODS OF COOKING FOOD

L.No	Title of Lesson	SKILLS	Activity
4	Methods of Cooking Food	Interpersonal Communication and Effective Communication, Critical Thinking and Creative Thinking, Problem Solving and Decision Making, Coping with Stress	Importance and methods of cooking food

### Summary

Cooking makes food easy to digest. It improves the appearance, texture, colour, flavour and taste of food. It adds variety to meals. It helps making food safe and helps to keep it longer.

Food can be cooked by various methods:

- Moist heat: boiling, simmering/ stewing, steaming and pressure cooking
- Dry heat: baking, roasting and grilling
- Frying in oil/ghee: deep frying and shallow frying

In **boiling** food is cooked in adequate quantity of water. It is safe and simple and the food also does not get charred. But while boiling water soluble nutrients are lost from food if the water in which the food is boiled is discarded. **Stewing** is cooking food in small quantity of water kept below boiling point for a long time. By this method, the juices of the food are retained and nutrients are conserved. **Steaming** is cooking food with the heat from water vapours. Steaming helps the food to cook in a short time and helps to conserve the nutritive value, colour, flavour and palatability of food. **Pressure cooking** is a process of cooking in a special aluminium/steel utensil which allows cooking with a lot of steam under pressure. This method helps to kill all bacteria in food; reduce loss of water soluble vitamins and minerals; the food gets cooked faster and thus consumes less fuel. **Baking** is a method where the food is cooked inside an oven. The air inside the oven gets hot due to fire lit at its base or with electricity. **Roasting** is a process in which the food is put directly on a hot tava/ girdle/ sand/ fire and cooked. **Grilling** is cooking over a glowing fire. It uses more indirect heat and is slower than roasting. **Frying** is the process of cooking food in hot ghee or oil. Shallow frying means frying in little oil and deep frying means immersing food fully in hot ghee or oil.

### Principal Points

#### Solar cooking—a BRIGHT idea!

A solar oven or solar cooker uses sunlight as its source of energy.

#### Advantages:

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

#### Disadvantage:

A solar cooker can only be used outdoors and it works only when there is plenty of sunshine.

### Build Your Understanding

1. While boiling, which do you think needs more water to cook—rajmah or vegetables?  
Ans. Rajmah needs more water because it is drier and harder than vegetables.
2. Do you know why a pressure cooker cooks food fast?  
Ans. In an ordinary cooking pan, steam escapes from the sides. But in a pressure cooker steam gets trapped thereby the food gets cooked faster i.e. almost in 1/3rd time than boiling.

**What's Important to Know?****SAVE NUTRIENTS!**

- Foods having water soluble nutrients should be cut and chopped after washing. The water, in which they are cooked, should not be discarded.
- Foods having fat soluble nutrients should be served along with the oil in which they are cooked.
- Leaving foods exposed could result in nutrient loss due to oxidation.
- Over-cooking always results in losses.
- For hard foods, it is better to soak them for a few hours before cooking than to use cooking soda.

**METHODS OF FOOD ENRICHMENT**

- **Combination:** Lack of a certain nutrient in one food can be compensated for by cooking it with a food that has the absent nutrient e.g. dal and rice in khichri.
- **Fermentation:** Micro-organisms present in food or added in the form of curd or yeast change nutrients into simpler form. Sometimes new nutrients are created e.g. dhokla.
- **Germination:** Soaked pulses are left tied in wet muslin to sprout. This way the nutritional quality is increased and the food becomes easier to digest.

**Evaluate Yourself**

1. Choose a method of cooking suitable for your sick grandmother and give two reasons for your answer.
2. If your pressure cooker is not working effectively, what could be wrong with it?
3. Name two dishes cooked by each of the following methods: a) baking; b) steaming; and c) deep frying.

**Did You Know?****NUTRIENTS ARE LOST DURING COOKING!****Vitamin A**

- It gets oxidized when it reacts with the oxygen present in air e.g. carrots cooked in open pan.
- It gets dissolved in fat e.g. when spinach is deep fried.

**Vitamin B complex**

- It gets dissolved in water when the foods consisting vitamin B complex are washed, soaked or cooked in water e.g. boiled vegetables, rice and pulses.
- It is destroyed when cooking soda is added to foods e.g. rajmah.
- Vitamin B<sub>2</sub> is destroyed from milk if exposed to sunlight.

**Vitamin C**

- It gets destroyed by heat and oxidation e.g. when food is kept cut for long or cut too fine.
- If the food is over-cooked or cooked with soda or cooked in water (the water is later discarded).

**Protein**

- Proteins absorb water and get coagulated with heat. Overcooking makes protein foods dry, rubbery and difficult to digest.

**Oils and fats**

- Repeated heating lowers the quality of food.

**Minerals**

- Minerals such as sodium and potassium dissolve in water.
- Cut foods lose minerals during washing.

**Extend Your Horizon**

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

**Maximize your marks**

- Do the intext questions and activities in the chapter.
- Learn about the various methods of cooking.

## PRESERVATION OF FOOD

L.No	Title of Lesson	SKILLS	Activity
5	Preservation of Food	Critical and Creative Thinking, Problem Solving and Decision Making	Importance and methods of food preservation

### Summary

Food is said to be spoilt when it is no longer fit for eating. It changes in colour, gives off bad smell and shows signs of fermentation. Spoilage can occur because of:

- **Microorganisms:** These are naturally present in food or in the air surrounding the food. Air, moisture and room temperature help them grow and multiply.
- **Enzymes:** These are naturally present in food. When given a longer duration to act they spoil the food.
- **Insects, worms and rodents:** When food is left carelessly it may be attacked by them.

Food kept safe in a special place until needed for consumption is called **food storage**. The time for which a food can be kept fresh is called its **shelf life**. According to its shelf life, food may be termed as **perishable** e.g. carrots; **semi-perishables** e.g. *suji*; **non-perishables** e.g. cereals.

**Preservation** is a technique which is practiced to keep food safe for a long time, retain quality and prevent decomposition or fermentation. It increases the shelf life and makes food available during the off-season. There are many methods of preservation—low temperature, high temperature, use of preservatives and dehydration. The selection of the food preservation method depends upon the food item to be preserved.

### Did You Know?

You must have noticed that fruits kept in the refrigerator for a long time begin to rot. Do you know why this happens?

Ans. It happens as the enzymes present in the fruits get more time to act on them.

e.g. raw apple → action of enzymes → ripe apple  
apple → action of enzymes → rotten apple

### Build Your Understanding

Your uncle sends you a big bag of fenugreek from his farm. How will you prevent it from getting spoilt?

Yes, dehydrate it! Leafy vegetables have a lot of moisture in them and are very voluminous thereby causing two problems—quick spoilage and storage difficulty. Dehydration reduces its water content keeping it safe from being spoilt and also reduces bulk making it easy to store.

### Maximize your marks

- Learn the importance and principles of food preservation.
- Learn the methods of preserving foods at home.
- For better understanding, practically conduct the activities mentioned in the chapter.

### What's Important to Know?

#### Importance of food preservation

- Takes care of excess produce that reduces wastage.
- Makes seasonal food available throughout the year e.g. mango pulp.
- Adds variety to our meals like chutney, papads and pickles.
- Food items are transported to places where they are not grown or available e.g. warm regions of the country can enjoy the preserved form of apples transported from the colder regions of the country.
- Transportation and storage is easier e.g. fenugreek when preserved reduces in weight and volume. It becomes convenient to store and transport.

#### Principles of food preservation

- **Killing microorganisms:** Processes such as boiling of milk at home, pasteurization of milk and canning kill the undesirable microorganisms in food.
- **Preventing or delaying the action of microorganisms by:**
  - Providing a protective covering e.g. use of polythene bags and aluminium foil for storage
  - Raising the temperature of food by heating will give them a longer life
  - Lowering the temperature e.g. frozen food items
  - Adding chemicals such as the prescribed amount of sodium benzoate helps in preserving tomato sauce
- **Stopping the action of enzymes:** Mild heat treatment e.g. blanching of vegetables before freezing.

### Method of Food Preservation

Method	Action
<b>Low temperature</b>	Slows down microbial and enzyme action e.g. refrigeration, cold storage and freezing. The lower the temperature, the longer the food can be preserved e.g. frozen peas.
<b>High temperature</b>	Enzymes and most microorganisms are destroyed by <ul style="list-style-type: none"> <li>• <b>Pasteurization</b> e.g. milk</li> <li>• <b>Sterilization</b> e.g. pressure cooker</li> </ul>
<b>Use of preservatives</b>	<b>Natural preservatives</b> <ul style="list-style-type: none"> <li>• Salt e.g. pickle</li> <li>• Sugar e.g. jam</li> <li>• Acids like lemon juice, vinegar and citric acid e.g. sauce</li> <li>• Oil and spices e.g. pickle</li> </ul>
<b>Chemical preservatives</b>	e.g. sodium benzoate in tomato sauce and potassium metabisulphite in squashes.
<b>Dehydration</b>	Difficult for microorganisms to grow. Some food items are dried in their natural form e.g. fenugreek. Some can be partially cooked and then dried e.g. potato chips.

### Extend Your Horizon

Milk is available in three different forms in the market. Explain to your friend the principles of preservation used in each of these methods.

### Maximize your marks

1. How will you ensure daily intake of amla, even though amlas are not available throughout the year?
2. What is a good way of storing spices? Give reasons for your answer.

## ENVIRONMENT

L.No	Title of Lesson	SKILLS	Activity
6	Environment	Self Awareness and Empathy Effective Communication Critical Thinking and Creative Thinking Problem Solving and Decision Making Coping with Stress	Awareness about environment degradation due to pollution

### Summary

**Pollution** is the addition of any substance that makes the environment impure. These substances which cause pollution are called pollutants. Dust, dirt, garbage, chemicals and industrial wastes are common pollutants. There are four different types of pollution—air, water, soil and noise.

**Air pollution is caused** due to natural processes such as gas emissions from volcanoes, forest fires, dust with wind. It is also due to some human activities such as burning of household fuel, coal, exhaust from automobiles or smoke from factories. Air pollution can be **controlled** by using biogas as fuel, solar cooker, public transport and CNG vehicles.

**Water pollution is caused** due to domestic, industrial, agricultural wastes and oil spills. To **control** water pollution sewage water, industrial and residential wastes should not be thrown into rivers, ponds and other sources of water. Rain water can be harvested for future use.

**Soil pollution is caused** due to improper disposal of chemicals, metals and other wastes. Open defecation, urination and spitting also lead to soil pollution as dirt, germs and worms begin to breed in the soil. It can be **controlled** by recycling, composting and incineration.

**Noise pollution is caused** by automobiles, loud speakers, machines etc. It can be **controlled** by avoiding loud speakers, using silencer for vehicles and using horns, only when necessary.

### Principal Points

- Human beings, animals, plants and environment are affected adversely by air, water and soil pollution.
- Pollution leads to various diseases in humans and animals.
- Industrial wastes are responsible for all types of pollution.
- Noise pollution affects human beings and animals.

### Build Your Understanding

Pollution is created by both natural as well as man-made processes. Man-made processes can be controlled to an extent and it is the responsibility of every individual to control it.



### What's Important to Know?

#### Air pollution causes

- Eye infections
- Decreased food production
- Poor visibility (smog)
- Respiratory tract allergies
- Rise in temperature
- Destruction of vegetation and natural beauty

#### Water pollution causes

- Water-borne diseases like cholera, typhoid, diarrhea, dysentery and gastroenteritis
- Skin diseases
- Degradation of aquatic life including aquatic plants and animals

#### Soil pollution causes

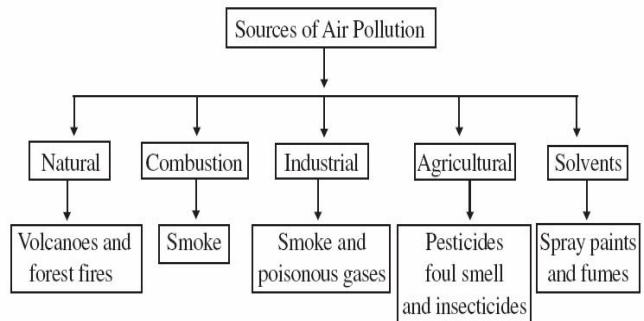
- Degradation of soil
- Sickness, if soil is consumed directly or indirectly or walked on with bare feet
- Lowering of food productivity and quality
- Absorption of chemicals by plants
- Sickness in humans and animals after consumption of these plants and vegetables.

#### Noise pollution causes

- Strained nerves
- Headache
- Mental disturbance
- Hearing impairments
- Damaged eardrums

### Extend Your Horizon

1. Drinking of water from a nearby well is causing typhoid in your locality. What steps could you adopt to make this source of water safe for consumption?
2. Smoke makes your mother cough while cooking. Suggest two smokeless cooking devices.



### Did You Know?

#### Smoke from cigarette

80% of the smoke from cigarette stays in atmosphere, which pollutes the air and in turn also gets inhaled by others.

#### Smoke from chullahs

Coal burning chullahs when used for cooking emit dangerous gases which affects the person cooking on the chullah. This can cause respiratory/lung impairments and diseases.

#### Industrial wastes

Chemicals from industries contaminate air, water and soil. These chemicals react with existing substances resulting in fatal acidic reactions which are harmful to humans, animals, plants and microorganisms thereby affecting the whole ecosystem.

### Evaluate Yourself

Composting can be done at home. Manure can be used for plants in your garden at home. Composting helps in reducing the garbage at home and also utilising natural wastes.

### Maximize your marks

Learn the definitions mentioned in the chapter. A cycle or diagram can help in understanding and memorising various processes.

# HEALTH

L.No	Title of Lesson	SKILLS	Activity
7	Health	Self Awareness and Empathy, Interpersonal Relationship and Effective, Communication, Critical Thinking and Creative Thinking, Problem Solving and Decision Making, Coping with Stress and Coping with Emotion	Health trends at personal and community level

## Summary

A healthy person is energetic, alert, has control over emotions and possesses a positive attitude towards life. According to the World Health Organization, **health** is 'state of complete physical, mental and social wellbeing and not merely the absence of disease'.

Following are some of the signs of good health:

- **Physical health:** energetic, alert, good appetite and sound sleep
- **Mental health:** control over emotions, confident, stress free
- **Social health:** positive attitude, pleasant personality, get along with others



*Health triangle showing three dimension of health*

**Balanced diet** and **personal hygiene** are very important factors affecting personal health. Intake of a balanced diet containing carbohydrates, proteins, fats, vitamins, minerals and fibre in the right amount and proportion keeps an individual healthy. Hygiene deals with various practices and principles that help in maintaining good health.

**Community health** is the practice of preventing diseases and promoting health of a population through the organised efforts of the society, public and private organisations, communities and individuals. To maintain good community health various programmes and activities should be followed—proper garbage disposal, supply of clean drinking water; ensuring standards of the food stores, providing medical facilities etc.

The ability of the body to protect itself against disease-causing organisms is called **immunity**. A person develops immunity during their lifetime. At times readymade antibodies are also injected into the body. Immunity is of two types—**Natural immunity** (by birth) and **Acquired immunity** (through exposure and through vaccinations).

## Principal Points

**To enjoy good health one must adopt the following:**

- Sleep on time to relax mind, body and to repair body tissues
- Have a regular walk and exercise programme
- Ensure complete immunization for optimal protection against diseases
- Have a positive attitude towards life
- Positively accept any disagreements in life and try to improve
- Keep your surroundings clean and free from disease-causing agents such as mosquitoes and flies
- Avoid alcohol, smoking and drugs
- Maintain good relationships with family members, friends and community

**Build Your Understanding**

An individual with strong will power, determination and positive attitude can adopt good and healthy habits. Habits may be difficult to change but not impossible.

**What's Important to Know?**

To remain healthy in life an individual should be physically, mentally and socially well.

A **physically** healthy person will have:

- normal weight and height
- clean and clear skin
- bright and shiny eyes
- odourless breath
- good appetite
- sound sleep

A **mentally** healthy person will have:

- control over emotions, balanced feelings, desires and ambitions
- ability to accept the realities of life and face them
- confidence in their own abilities
- helpful attitude towards others
- ability to seek help when needed

A **socially** healthy person will:

- have a pleasant personality
- fulfil responsibilities and duties towards others
- have healthy interpersonal relationships
- have the ability to get along well with others

**How to keep your environment clean?**

- Keep your house well swept and clean everyday
- Keep your house whitewashed and fumigated at regular intervals
- Keep your neighbourhood clean by managing proper garbage disposal
- Clean stagnant water and drains properly so that breeding sites for mosquitoes and flies are eliminated

**Did You Know?**

The Government of India has devised various health programmes which are implemented at community level such as:

- National Malaria Eradication programme (1953): This programme aims to reduce the incidence of malaria by spraying DDT in colonies and communities.
- Tuberculosis (T.B.) Eradication programme (1962): This programme provides free of cost, quality anti-bacterial medicines.
- National Pulse polio programme (1995): This project deals with ways to fight polio. Special campaigns are launched for children below five years of age.

**Extend Your Horizon**

Do a survey of your surroundings to determine the level at which community health and hygiene are being implemented.

**Evaluate Yourself**

1. Your maid generally leaves cooked food open, where flies fly all around the food to be consumed. Tell her about the importance of food hygiene and what should she do to keep food like fruits, vegetables and milk safe.
2. Anjalika needs to know the immunization schedule for her new born sister. List down the vaccines that the baby should get till five years of age.

**Maximize your marks**

- Learn the immunization schedule
- Learn the principles of food hygiene
- Follow common practices to remain healthy

## COMMUNICABLE AND LIFE STYLE DISEASES

L.No	Title of Lesson	SKILLS	Activity
8	Communicable and life style diseases	Self Awareness and Empathy, Interpersonal Relationship and Effective communication Critical Thinking and Creative Thinking Problem Solving and Decision Making Coping with Stress and Coping with Emotion	Identify causes, signs, symptoms and prevention of communicable and lifestyle diseases

### Summary

**Disease** is a state of discomfort where the normal functioning of the body is affected. The two types of diseases are communicable diseases and life style diseases. **Immunity** is the ability of the body to resist a particular disease.

Diseases that spread from one person to another are called **communicable diseases** or infectious diseases. Communicable diseases are caused by germs and parasites present in air, water, soil etc. which spread through food and water, air, contact and insects. The gap of time between the entry of germs into our body and the appearance of symptoms of the disease is called the **incubation period**.

**Life style diseases** or non-communicable diseases that do not spread from one person to another. They develop in a person due to faulty eating and living habits. These diseases are chronic in nature and do not result from an acute infection. They cause dysfunctioning in the body and impair the quality of life. Diabetes, hypertension, obesity, heart problems are few examples of life style diseases.

**HIV** (Human Immuno Deficiency Virus) is caused by a virus that attacks the body's natural defence system. When HIV completely destroys a person's defence system, **AIDS** (Acquired Immuno Deficiency Syndrome) sets in the body. HIV/AIDS is a highly communicable disease. HIV/AIDS is spread only by sexual contact with an infected person; exchange of infected body fluids such as blood transfusion; use of infected needles; and from infected mother to her child during pregnancy or at birth.

### Principal Points

#### Easy steps for Healthy living!

- Exercise regularly
- Use staircase instead of lift or escalator as far as possible
- Eat a balanced diet, do not overeat
- Avoid processed and packaged foods
- Eat whole grains like cereals, millets
- Eat a variety of seasonal fruits and vegetables in a day
- Drink plenty of water
- Practice yoga or meditation to avoid stress in life
- Keep away from smoking and drinking alcohol
- Play outdoor games or do gardening instead of watching television

### Build Your Understanding

Q. What will you do if someone in your family falls sick?

1. Consult doctor immediately

2. Follow doctor's advice



3. Give the patient balanced diet

4. Keep patient's room, clothes and utensils clean

**What's Important to Know?****Precaution is better than cure!**

Coming in contact with communicable diseases can be prevented by adopting the following:

- Keeping the personal belongings of the patient separate
- Keeping water in clean and covered containers
- Drinking boiled water and milk, so that they are free from germs
- Keeping food covered
- Avoiding buying and eating of cut fruits and vegetables from market
- Washing all utensils before use and washing hands before handling food
- Keeping the house and place of work well ventilated
- Maintaining personal hygiene by bathing regularly, keeping nails clean, washing hands after using the toilet
- Keeping your house, surroundings and drains clean and free of garbage.
- Not defecating in open and spitting anywhere. If you are suffering from cough and cold, carry a handkerchief to cover your mouth and nose

**Extend Your Horizon**

A person is diagnosed with influenza. List down the possible symptoms the person might be showing. Also suggest some preventive measures to others so that they do not contract influenza.

**Maximize your marks**

Learn the definitions given in the chapter. Learn the table of communicable diseases that can be managed at home.

**Did You Know?**

AIDS was first clinically observed in 1981 in the United States among injecting drug users. The virus damages the immune system of an infected individual, affecting the production of 'fighter cells' or antibodies. The individual thus gets exposed to and infected by various diseases. But it is important to understand that **HIV/AIDS does not spread by the following:**

- Shaking hands
- Kissing on the cheeks
- Using the same toilet seat
- Standing close to an infected person
- Through the air, that is sneezing or coughing
- Through sharing of cups, glasses or plates
- Having food or drinking water together

Following are some preventive steps:

- Restrict the number of sex partners to one
- Use protection during sexual contact
- Use only sterilised needles for injections
- When in need, get tested blood from a registered blood bank only

**Evaluate Yourself**

1. Lifestyle diseases or non-communicable diseases are commonly seen nowadays. What measures would you adopt in life to prevent lifestyle diseases?
2. Ravi has fever. He does not want to eat anything. His eyes are yellowish in colour and he is complaining of abdominal discomfort. Identify the disease. Give some tips on how to take care of him.

## CARE AND MAINTENANCE OF FABRICS

L.No	Title of Lesson	SKILLS	Activity
9	Care and Maintenance of Fabrics	Critical and Creative Thinking, Problem Solving and Decision Making	Importance and methods of stain removal

### Summary

Fabric prevents growth of bacteria and fungus, which prevents from spoilage and many skin problems. They need care and maintenance to prolong their life and strength. Well-maintained fabrics give a groomed look.

When we wear clothes they become dirty due to stains, dust, perspiration etc. and need laundering. Some clothes cannot be washed every time they are worn. Thus, before putting them away for reuse, shaking, brushing or airing becomes necessary.

For care and maintenance of the fabrics, one should know the following pre-laundering steps:

- Collecting soiled clothes
- Mending them to enhance durability
- Sorting them as per type, colour, size, weight, dirt, utility, soaking time etc.
- Understanding labels to get information about the do's and don'ts of washing a fabric
- Removing the stains

A **stain** is an unwanted mark of discolouration on a fabric caused due to contact with another substance. While removing stains, some following precautions should be taken:

- Remove the stain while it is still fresh otherwise it might penetrate deep into the fabric
- For delicate or coloured fabrics, do the chemical test on the inner side of the seam first and check for damage
- Use dilute or mild reagents
- Rinse thoroughly after removal of the stain

### What's Important to Know?

#### Classification of stains and techniques of stain removal:

Category of stains	Stains	Method of stain removal for white cottons
Vegetable	Tea, Coffee, Fruit	Boiling water, Borax
	Henna	Dip in warm milk
Animal	Blood, Milk, Egg	Cold water + soap
Grease	Oil, Ghee, Butter, Curry	Hot water + soap , dry on grass in sun
	Shoe polish, Paint, Lipstick	Scrape, sponge with spirit/ kerosene/ turpentine
Mineral	Rust	Lime juice + Salt
Miscellaneous	Grass, Ink	Soap + water
	Betal leaf (Paan)	Paste of onions, leave in sunlight

## Principal Points

## Laundering of Specific Fabrics

Steps	White Cotton	Coloured Cotton	Synthetic Fibre	Silk Fibre	Wool Fibre
Soaking	½ hour in warm water	No	No	No	No take outline of the garment
Washing	Any soap, Kneading and squeezing	Mild neutral soap	Cold water, good soap, light rubbing	Luke warm water, neutral soap, light rubbing	Neutral soap, kneading & squeezing
Rinsing	Whitening agent in last rinse	No whitening agent	No squeezing	In cold water	In warm water
Starching	In last rinse	In last rinse	Not required	Gum arabic	Not done
Drying	In sun	In shade	On hanger	Shade	On flat outline paper
Ironing	Hot iron	Hot iron	Warm iron	Warm iron	Steam iron
Storing	Completely dry	Completely dry	Completely dry	Completely dry	Completely dry

## Build Your Understanding

## Methods of Washing

- Washing by **friction**
  - Hand friction: used for cleaning very soiled small-sized areas such as cuffs, collar etc.
  - Scrubbing wash: suitable for cleaning floor and kitchen dusters
  - Beating stick: used for large clothes such as bed sheets and towels
- Washing by **kneading and squeezing**: used for delicate fabrics such as silk, wool etc.
- Washing in **machines**: saves labour and provides friction required for washing

## Did You Know?

Different fabrics are ironed on different temperatures because of their different composition and heat sensitivities. Wool and synthetic fibers are ironed at 150° C, Cotton and rayon at 180° C while cotton and linen at extra hot 200° C.

## Extend Your Horizon

Reema had mistakenly spilled ink over her white school uniform. Identify the stain and suggest her some stain removal techniques.

## Evaluate Yourself

- What are the steps of stain removal?
- Why can't we iron woollens with hot iron? Give reason for your answer.
- Why is it essential to store only completely dry clothes?

## Maximize your marks

- Read and evaluate some labels
- Practice stain removing techniques to understand them better.

## FIBRE TO FABRIC

L.No	Title of Lesson	SKILLS	Activity
10	Fibre to Fabric	Critical Thinking and Creative Thinking Problem Solving and Decision Making	Importance and types of fibre and fabric

### Summary

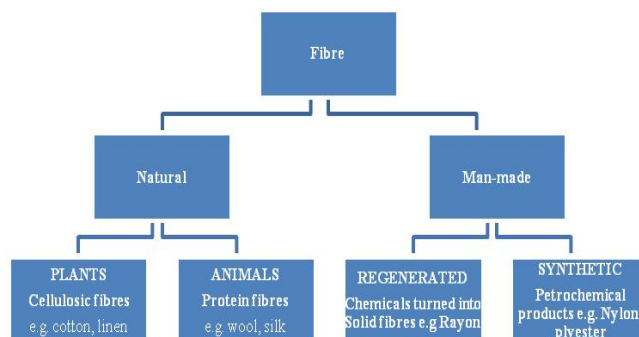
Fibre is the basic unit of fabric. Fibre may be long or short strands with a smooth structure. A **fibre** is a fine hair-like strand and is the basic unit of textiles from which yarns are made. From these yarns fabric is constructed.

Clothes are made out of fabrics. They cover the body, protect from adverse climates, enhance the personality and is an indication of the status of a person. Certain fabrics define religion and occupation e.g. a military uniform indicates that the person is a defence personnel. Fabric can be used to make upholstery, curtains etc. Fibre has to undergo various processes to become a yarn

such as **cleaning**—to remove the unwanted material; **carding**—to arrange fibres in a parallel manner; **combing**—to separate short and long fibres; **spinning** and **winding**.

**Weaving** is interlacing of two sets of yarns—warp and weft, at 90° angles to each other. Straight yarns in a fabric are known as **warp yarns** and horizontal yarns are known as **weft yarns**. Along the length of the woven fabric, on both sides, end yarns are woven very densely and the portion is named **selvedge**.

**Knitting** is the process of formation of loops of yarns and drawing of new loops through those formed previously (interlooping).



### Principal Points

- Short length fibres are called **staple fibres**. They are measured in inches and centimetres e.g. cotton, wool and linen
- The long fibres are known as **filaments** and are measured in yards or meters e.g. silk and all man-made fibres
- Rayon is also called 'artificial silk'. These fibres are **thermoplastic** in nature (heat sensitive)

### Build Your Understanding

Silk is a natural, protein filament produced by silk worm. Silk is soft, fine, smooth, lustrous, warm and stronger than wool. Silk is known as the 'Queen of fibres'.

You have received a silk outfit. How will you determine whether the silk fabric is pure or artificial.



**Did You Know?**

The behaviour of the fibres on approaching the flame, in the flame, on burning by the flame and the residue left after burning can help to identify if the fibre is natural or man-made.

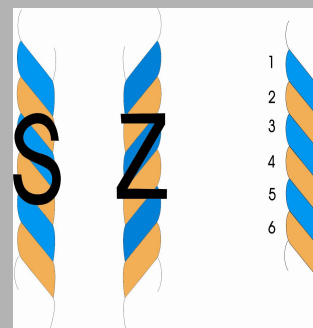
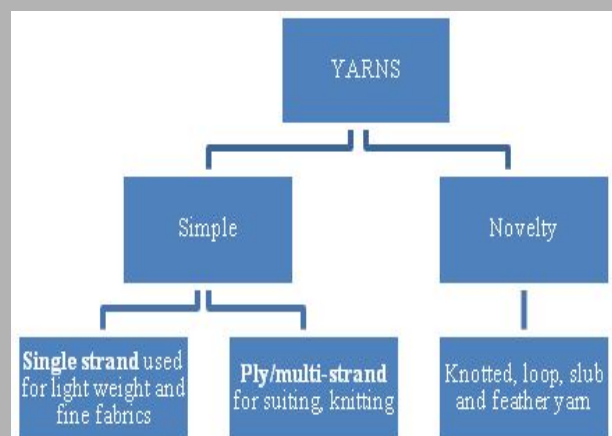
**Burning test for identification of fibres**

Fibre	Near flame	Type of burning	Odour of burning	Residue
Cellulosic Fibres	Catches fire easily	Continues to burn, bright flame, afterglow	Burning paper	Light, feathery, greyish-black smooth ash
Protein Fibres	Smoulder and burn	Slow flickering flame, sizzles and curl	Burning hair, feather	<b>Silk:</b> crisp dark ash <b>Wool:</b> dark irregular crushable ash

**Extend Your Horizon**

Twists given to fibre strands for formation of a yarn can be either 'S-twist' (clockwise) or 'Z-twist' (anticlockwise). The quality and strength of yarn is affected by the number of twists per inch. Lesser the number of twists per inch, bulkier and less strong is the yarn. If there are more number of twists the yarn is finer and stronger.

Take a strand of the cloth you are wearing and untwist it to see if it is S-twist or Z-twist.

**What's Important to Know?****CLASSIFICATION OF YARNS****Evaluate Yourself**

1. Your friend feels very hot in summers. He wants to know what fabrics would suit him in summers. Suggest two fibres and fabrics suitable for summers.
2. What kind of fibre and fabric will you select for your undergarments and why?
3. Your mother wants to buy new eco-friendly clothes. Suggest some fabrics that she can buy.

**Maximize your marks**

- Learn definitions
- Diagrams can help in understanding and memorising various techniques
- Learn the tables given in the chapter

## FABRIC FINISHES

L.No	Title of Lesson	SKILLS	Activity
11	Fabric Finishes	Critical Thinking and Creative Thinking Problem Solving and Decision Making	Importance and types of fabric finishes and dyeing

### Summary

The fabric which comes out of a loom is very dirty, stained, wrinkled, dull, rough, grey or off-white in colour. They are known as **grey fabrics**. No one buys a fabric in this condition even if sold at a low cost. Therefore fabrics are given various finishes to make grey fabric lustrous, wrinkle and stain free, wider, colourful, good texture and print. This makes the fabric more useful and suitable for use. **A finish is a treatment given to a fabric, to change its appearance, handling/ touch or performance. Its purpose is to make the fabric more suitable for its end use.** It improves the feel and touch. These finished fabrics lure the consumers to buy them even if they are costly.

There are two categories of finishes—**basic** and **special** finishes. They can be further classified into three types:

- Functional
- Performance
- Mechanical and chemical in nature.

These are chosen as per the use of the fabric and the type of the fibre.

The process of producing colours and designs on a fabric is called **dyeing** and **printing** respectively. Dyes and printing makes the fabric beautiful and gives variety in design and colour. Dyes are divided into two major categories—**natural** and **synthetic** dyes. Dyes can be applied at different stages such as the fibre stage, the yarn stage or the fabric stage. All these stages give uniform colour. Colour is not uniform when fabric is dyed at garment stage.

### Principal Points

#### Classification of finishes as per function

Finishes	Types	Process involved	Effect on fabric
<b>Basic / Aesthetic</b>	Scouring/Cleaning	With warm water and soap	Improves whiteness, absorbent
	Bleaching	Chemical: Hydrogen peroxide-protein fibre Sodium hypochloride- cotton fibre	Whiteness
	Starching	Soaking in starch	Stiff, heavy, shiny, smooth
	Calendering	Industrial ironing	Remove wrinkles
<b>Functional / Special</b>	Pre-shrinking	Dipping in water	No further shrinkage
	Mercerization	Sodium hydroxide	Strong, lustrous, absorbent
	Parchmentisation	Use of mild acid	Permanent stiffness
	Wash n wear		Wrinkle resistant
	Dyeing and printing	Natural and chemical colours	Variety in colours and design

**Build Your Understanding**

There are various types of dyeing and printing techniques:

- Tie and dye
- Batik
- Block printing
- Screen printing
- Roller printing
- Stencil printing

**Did You Know?**

Did you know nature offers us many sources of dyes? Can you guess some? Some of them are mentioned below:

Dye	Source	Effect	Type
Natural dye	<ul style="list-style-type: none"> <li>• Vegetable</li> <li>• Animal</li> <li>• Mineral</li> </ul>	<ul style="list-style-type: none"> <li>• Eco-friendly</li> <li>• Dull colour</li> <li>• Not fast</li> </ul>	<ul style="list-style-type: none"> <li>• Turmeric</li> <li>• Henna</li> <li>• Madaar</li> <li>• Indigo</li> </ul>
Synthetic dye	<ul style="list-style-type: none"> <li>• Chemical</li> </ul>	<ul style="list-style-type: none"> <li>• Pollutes</li> <li>• Allergic</li> <li>• Fast and bright colours</li> </ul>	<ul style="list-style-type: none"> <li>• Direct</li> <li>• Basic</li> <li>• Acid</li> <li>• Disperse</li> <li>• Vat</li> </ul>

**Maximize your marks**

- Read carefully the words and sentences in bold in the module
- Do some activity related to fabrics

**What's Important to Know?**

**Finishes as per performance and nature**

Finishes	Durability	Example/Effects
<b>Temporary</b>	Run off with one wash	Starch, blue
<b>Semi- durable</b>	Run off with several wash	Bleaching, dyeing
<b>Durable</b>	Not so permanent	Wrinkle resistant, permanent pleats
<b>Permanent / chemical/ wet</b>	Entire life	Water proofing
<b>Mechanical/ dry</b>	Do not last long	Beating, brushing, calendering, filling

**Extend Your Horizon**

Design three samples of handkerchief using different types of dyeing or printing techniques.

**Evaluate Yourself**

1. Why is it advisable to buy sanforised fabrics?
2. Differentiate between Patola dyeing and dyeing?
3. What is the basic difference between dyeing and printing?
4. You need a raincoat, what finish will you look for?

# HOUSING

L.No	Title of Lesson	SKILLS	Activity
12	Housing	Self Awareness and Empathy, Interpersonal Communication and Effective Communication, Critical Thinking & Creative Thinking, Problem Solving & Decision Making, Coping with Stress	Importance of site selection; proper lightning at home and disposal of waste

## Summary

Home is the basic need of a family. **House** is physical construction made of brick, sand, cement, stone etc. A **house** becomes **home** when all the family members start living there and enjoy all the happiness, love and affection, health, ease, comfort, social and entertainment activities. Home not only provides shelter but also provides security and belongingness.

The place where we construct a house is called a **site**. For building a house, site selection is very important. A good site should have developed neighbourhood, firm soil, practical convenience (e.g., school, hospital etc.), have good sanitary disposal system and elevated physical features.

**Ventilation** means to circulate fresh air and driving out foul air in order to freshen up the interiors of a house.

**Hygiene** at home can be maintained through proper lighting, cross ventilation, sanitation and by proper disposal of human excreta by water closet and septic tanks. Advantages of septic tanks are: hygienic; low cost of construction and maintenance; no pollution of water; no foul smell; saves water in flushing; cleaning pit not required; provides manure; gases disperse in soil and no mosquito, fly or insect breeding.

One should also learn to dispose off waste properly to ensure that soil and water is not polluted.

## Principal Points

### Functions of a Home

A home is much more than a house. Here is a list of its different functions:

- **Protective:** Provides security and shelter, protects from weather, animals and enemies.
- **Economic:** Offer value in terms of money; raises socio-economic status and can generate income.
- **Educative:** Helps in development of personality, family values, life Skills and responsibility.
- **Social/religious:** Promotes interaction, develops sense of belongingness, helps in transfer of values and customs.

## Build Your Understanding

### Optimum use of areas

To make best use of all areas in the house, consider the following points:

- List and combine all activities that take place in each room.
- Decide space for each activity.
- Do not over-crowd the room.
- Use multi-purpose furniture that may also be used for storage and room division.
- Utilize space below staircase.

### What's Important to Know?

#### Selection of Site for a Home

You can select proper site for your house by keeping the following points in mind:

- **Neighborhood:** Ensure that house is in an area which is developed in all aspects i.e. electricity, roads and drainage. Common facilities like post-office, hospitals, schools etc. should be available nearby.
- **Physical features:** Choose a house in an open area. It should not be close to heavy traffic areas. Avoid low-lying areas due to danger of flooding or water logging.
- **Soil:** The soil should be firm till 2-5 meters/feet below the surface to ensure a strong foundation. Remember that:
  - **Loose soil** - leads to tilt due to shifting of soil.
  - **Sandy or gravel soils** - tend to make house hot.
  - **Rocky surface** - is good for foundation but does not absorb water.
- **Sanitary Requirements:** Site should be filled with fresh and firm soil and elevated to the level of the road outside.
- **Practical convenience:** Market, transport facility, post-office, schools, hospitals, banks etc. should be within reasonable walking distance.

### Extend Your Horizon

A village near your place does not have proper sanitary conditions. How will you help the people living in that village to improve their sanitary conditions?

### Did You Know?

**Light:** Proper lighting is important. It enhances the beauty of the house. Two types of lighting are:

- **Natural Lighting:** That we receive from natural sources i.e. the sun.
- **Artificial Lighting:** That we receive from artificial sources such as tube light and bulbs.

**Ventilation:** Fresh air is essential for healthy living. It can be done through natural or artificial sources. Windows of the room should be kept open so that fresh air circulates freely, even in winters. Cross ventilation is desirable.

#### Sanitation:

- Maintaining cleanliness- Daily cleaning, weekly cleaning and spring or seasonal cleaning.
- Removal of garbage.
- Disposal of waste water and human excreta through Water Closet and Septic tanks.

### Evaluate Yourself

1. In a house, there is a big hall to be shared by two brothers. How will you create privacy and space?
2. You are living in a village. What type of latrine is best for you and why? Give four reasons.
3. You have employed a servant. Define his/her cleaning duties to be done on daily, weekly and seasonal basis?

### Maximize your marks

Learn the tables given in the chapter.

Study all diagrams in the chapter to better understand the key aspects.

## SAFETY IN THE HOME

L.No	Title of Lesson	SKILLS	Activity
13	Safety in the Home	Self Awareness and Empathy, Interpersonal Communication and Effective Communication, Critical Thinking, Problem Solving & Decision Making, Coping with Stress and Coping with Emotion	Awareness about safety measures that can be taken in case of accidents

### Summary

**Accidents** are major cause of death, especially, among elderly and children. Accidents can also affect a person's psychological, social and cognitive development. Accidents are usually unpredictable and unintended. Carelessness about basic safety norms in the house can take just a second to cause an accident. You can avoid most accidents if you know what kind of accidents can occur in your home. The various kinds of accidents are: falls; cuts; burns and scalds; poisoning; bites and stings; electrocution and shocks; suffocation and choking.

**First Aid** is the potential life saving technique which is given initially for any injury until professional medical treatment can be given to the victim. For example, if you burn your hand, what is the first thing you do? Put it under water? Does it help to reduce some pain? This kind of initial treatment is called **first aid**. Each of us should try to acquire knowledge and skill of first aid to handle the emergency situations in positive and responsible ways.

### Principal Points

#### Rules of First Aid

You should be aware of these simple rules of first aid:

- Keep a readily accessible First Aid box at home
- Do not waste time in providing first aid
- Remain calm and resourceful
- Take the injured to a safe place
- Reassure the patient
- Disperse the crowd
- Attend fatal injuries first
- Give liquid if the patient is unconscious
- Keep emergency helpline numbers handy
- Call the doctor
- Know the shortest route to the nearest hospital

### Build Your Understanding

#### First Aid Box

Ensure that you include the following items in your first aid box:

- First aid manual
- Gauze of different sizes
- Adhesive tape and bandages
- Thermometer
- Torch and batteries
- Scissors
- Antiseptic lotion
- Sterile cotton
- Paracetamol ( for fever)
- Burn relief ointment
- Antibiotics and Antacids, Isabagol
- Anti- inflammatory balm/ tablet
- Hospital/ Ambulance Ph. no.

### What's Important to Know?

#### Common Accidents at Home

Carelessness about basic safety norms in the house can cause an accident. Here is a list of some common accidents and their causes:

- **Falls**
  - Cluttered and Slippery Floor
  - Grill-less Window
  - Wobbly ladder
  - Roof without boundary
  - Dimly lit Stairs
- **Cuts**
  - Sharp Corners
  - Cracked Glass
  - Knives, Blades in reach of child
  - Not using tin cutters
- **Burns and Scalds**
  - Hot Liquid
  - Fire
  - Lighted Cigarette
  - Acids and Chemicals
  - Gas cylinder leak
  - One socket two appliances
- **Poisoning**
  - Cleaners and Detergents
  - Insecticides and Pesticides
  - Fuels
  - Expired medicines
- **Bites and Stings**
  - Bees
  - Insects
  - Snake
  - Wasps
- **Electrocution and Shocks**
  - Naked and Loose wire
  - Short Circuits
- **Suffocation and Choking**
  - Polythene bags
  - LPG cylinders
  - Charcoal stoves
  - Generators
  - Carbon monoxide produced by soft coal and wood.

### Did You Know?

- **80%** of the accidents occur at home.
- Over spraying of pesticides on fruits and vegetables can make them poisonous.



### Extend Your Horizon

There is a fire in your neighborhood and people are suffering from choking. What kind of first-aid will you provide to them?

### Evaluate Yourself

1. You have just installed a computer in your room. All wires are lying loose. What will you do to avoid any accident?
2. What is the best way to clean broken glass pieces from the floor?
3. What type of cloth/ fabric should you wear while cooking?
4. Why should we keep polythene bags away from the reach of children?

### Maximize your marks

Learn about the common accidents at home.

Study the table that describes first aid for specific injuries. This will help you better understand and memorise various first aid procedures.

## INTRODUCTION TO RESOURCES

L.No	Title of Lesson	SKILLS	Activity
14	Introduction to Resources	Critical Thinking and Creative Thinking Problem Solving and Decision Making	Resources available and importance of management of these resources

### Summary

We all have needs, both material and non-material. Satisfaction of our needs is required for happiness in life. To satisfy needs, we have to set up goals and try to achieve the same. For example:.

- Need—convenience in commuting
- Goal—owning a car
- Result—happiness because need fulfilled



Goal is a target or aim that we wish to achieve, to satisfy our needs, so as to bring happiness in our life.

Goals are not easily achieved. One needs time, money, energy etc. to achieve them, e.g. to pass an examination, you need time, knowledge, books and money. These means that are used to attain goals are called **resources**.

#### Types of resources

- a) **Human resources:** The resources which are within an individual and can be used only by that person and cannot be taken and shared by others e.g. time, energy, skill, ability.
- b) **Non human-resources:** The resources which can be used and shared by others e.g. money, parks and hospitals.

### Principal Points

#### How to use resources effectively?

When anything is limited or in short supply, one has to use it carefully to get the maximum benefit out of it. In other words, one has to learn to manage it.

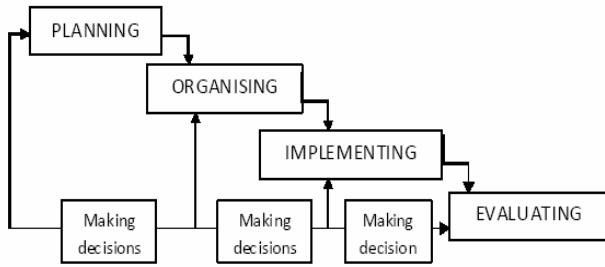
- E.g. During holidays (more time available) — relaxed use of time—less management required
- During examinations (less time available)—proper use of time—proper management required

Resources are always limited. Only with the proper planning, resources can be managed to achieve goals.

### Build Your Understanding

- a) For stitching a dress, we require human resources like time, energy, knowledge and skill and non-human resources like money, fabric and a sewing machine.
- b) For making a table, we require human resources like time, energy, knowledge and skill and non-human resources like wood, hammer, saw, nails, etc.





### What's Important to Know?

#### Management Process

Management is → Using what you have (resources) → To get what you want (goals).

#### Steps in the management process:

- 1. Planning:** It is a step before the actual work begins. The entire planning may be carried out mentally, well in advance. All aspects of the work are given consideration. It involves:
  - a. listing activities so that nothing is left out;
  - b. sequencing them, so that a proper flow of activities is maintained and
  - c. providing scope for flexibility to cope up with changing situations.
- 2. Organizing:** The work needs to be divided between workers according to their willingness to do the work, ability and availability of time. The workers will need to collect the resources needed to do the work. Organizing ensures that all the work gets done in time and there is equal distribution of work.
- 3. Implementing:** This is putting the plan into action. It is carrying out the actual activities as planned and organized earlier.
- 4. Evaluating:** This involves examining the progress of the plan to find out any shortcomings and take corrective measures accordingly. It gives us a chance to improve in future. Usually, this is the last step, but it can be done at the end of each management step so that the progress is good.

**Steps of management process are inter-related.**

### Did You Know?

Resources will not last forever. So, use them wisely by adopting the following practices:

- **Avoid wastage**—do not let tap water flow unnecessarily.
- **Conserve**— (electricity) when leaving the room, remember to switch off lights, fan, air-conditioner etc. to conserve electricity.
- **Try alternates**—replace gas cooking by solar cooking.
- **Make resources last longer**—wise use of money will stretch its use.
- **While conserving do not deprive others**—in saving money, do not deprive important needs of the family.

### Evaluate Yourself

1. Identify any two long-term and short-term goals. List the resources which may be required to achieve these goals.
2. As a home science student, list three questions you will ask yourself while evaluating a family meal you have planned.

### Extend Your Horizon

You have to manage your brother's birthday party. Make a plan of all the activities to be done and list the resources required.

### Maximize your marks

For successful management, keep the following points in your mind:

1. List down the activities to be done even though you can plan them mentally
2. Do not make the plan very ambitious or complex.
3. Assign responsibilities to people who are willing to help and have the time.
4. Ensure that you are moving according to the plan while implementing it.
5. Do a little evaluation after each step of management, so that you can take corrective measures in time.

## MANAGING TIME AND ENERGY

L.No	Title of Lesson	SKILLS	Activity
15	Managing Time and Energy	Self Awareness and Empathy Critical & Creative Thinking Problem Solving and Decision Making Coping with Stress and Emotion	Performing activities in a way that time and energy are effectively utilized and the goal is achieved.

### Summary

Time and energy are important limited resources; therefore, they should be used very wisely and efficiently. Making the best use of time and energy is known as **time and energy management**.

Planning is required to manage your **time** efficiently. A **time plan** is an advance plan of what we are going to do in a given time period.

#### Steps in time planning:

- 1) **Listing all activities** and organizing them in order of priority
- 2) **Grouping flexible (e.g. shopping) and inflexible (e.g. Going to school) activities together**
- 3) **Estimating time required for performing each activity**
- 4) **Balancing:** Add up the allotted time you have given to all the activities. If it adds up to more than 24 hours, balancing would be required in the time plan.

#### Ways of saving energy

Different types of activities require different amounts of energy. To manage our energy, we need to plan and utilize the following **ways of saving energy**:

- 1) **Break the task into smaller activities-** Heavy activities like cleaning of the house can be broken into smaller activities like sweeping, dusting and mopping.
- 2) **Cut all extra movements and combine activities-** The use of a tray or a trolley cuts down all the extra movements in serving food.
- 3) **Perform activities in a better order-** Proper sequencing of work gives a good flow to the work.
- 4) **Be more skilled at your work-** To gain mastery over the work.
- 5) **Use the correct posture-** If you want to do the job efficiently and with lesser energy.
- 6) **Work at proper heights and keep things near the place of use -** Create an organized work centre of correct height. Keeping all the required things near the area, where the work will be done, cuts down unnecessary trips.
- 7) **Use labour-saving devices-** These help to save both time and energy e.g. using mixer grinder to grind spices.

### Principal Points

#### Save Time

To enable us to complete all our tasks, we must try to save time. For this purpose:

- Prepare and follow time plans strictly;
- Do not waste time in unnecessary activities (e.g. In unnecessary chatting, watching television)
- Use labour-saving equipments like mixer-grinder
- Do tail activities i.e. do two or three activities at the same time. For example,
- Few activities require constant attention like kneading dough or driving car and few activities once initiated can be overseen in proper time intervals like cooking dal (pulse), washing clothes in machine. Preparation should be done in advance like boiling potatoes for *Aloo Pakora/Bonda*

### Build Your Understanding

#### A good time plan:

- is easy to follow
- is practical and flexible and
- allows for rest and leisure time activities

#### A good worker:

- creates a balance between work and rest
- makes a work schedule having both flexible and inflexible activities
- alternates heavy and light activities
- makes peak load periods light by a few pre-preparations
- allows time for rest and leisure after few activities

### What's Important to Know?

#### Advantages of a time plan!

A Time Plan helps you to:

- Finish all our work efficiently without feeling tired.
- Find time for rest and relaxation.
- Find time for our hobbies
- Do more productive work in less time.
- Save ourselves from last minute tensions and confusion, and
- Produce better quality of work.

### Evaluate Yourself

Mohan is a student. He also does a 9 a.m. to 5 p.m. job. Make a day's plan for him.

### Extend Your Horizon

1. Sita, a mother of two school-going children, has a heavy peak-load period every morning. Give her four tips to lighten her workload.

### Maximize your marks

Do the activities given in the chapter. Memorise the steps in performing various activities. Also review their advantages and disadvantages.

## MANAGING FAMILY INCOME

L.No	Title of Lesson	SKILLS	Activity
16	Managing Family Income	SelfAwareness, Empathy, Interpersonal Communication, Effective Communication, Critical Thinking, Creative Thinking, Problem Solving, Decision Making, Coping with Stress & Emotion	Significance of 'family income' and importance of Budget

### Summary

**Money** is required to fulfill the basic needs as well as comforts and luxuries of a human being. The money earned to meet these needs is called **Income**.

**Family Income** is the income from all sources like salary of family members, rents, and interest received from banks and savings from using skill of family members. This family income has to be divided and spent on various heads of expenditure of the family like food, clothing, housing etc. Some amount needs to be kept aside as savings to meet future needs. **Money is a limited resource** and therefore needs to be managed carefully. A part of the income which comes into a family can be saved for future use.

**Saving** is the money set aside by the family for use in times of need. **Expenditure** is the money we spend on items and services which fulfill our needs e.g. money spent on food and transport. A **spending plan** or a **budget** is made to plan the proper utilization of money. It is basically an account of all the income and expenditure of the family, with a view to balance the two. A spending plan has to be made individually by each family because the income and expense of every family is different from the other. To ensure that expenses are made according to the spending plan, a record of expenditure needs to be maintained.

### Principal Points

#### Characteristics of a good budget

A good budget:

- takes into account accurate estimates of income and expenditure, so that it is workable;
- is able to anticipate future needs e.g. high expenses during festival months and
- is flexible so that unforeseen expenses can be taken care of.

### Build Your Understanding

Remember, you have to make your own spending plan. You cannot use the plan your friend uses for his/her family. This is because, the amount a family spends on different items depends upon the following factors:

- Income
- Size of the family
- Age of the family members
- Place of residence
- Skills of the family members
- Savings - the family wants to make

Keep these points in mind and then, compare your pattern of expenditure with that of your friend to understand the difference.

### What's Important to Know?

- **What is a spending plan?**

**A spending plan:**

- is a planned approach to spend money;
- is a list of requirements of all the family members, with the money allocated for each item to fulfill these needs;
- is based on the total income of the family. It helps the family to live within their income and also save money for future needs and emergencies.
- **When a spending plan is made?**
  - Income is more than expenditure (savings made for future needs).
  - Hence a spending plan enables -  
**Income = expenditure + saving (ideal for the family)**
- **When a spending plan is not made?**
  - Income is equal to expenditure (future needs cannot be looked into)
  - Income is less than expenditure (family may need to borrow)

### Extend Your Horizon

Give some practical tips to your friend to reduce expenses on food.

### Evaluate Yourself

1. Mukesh's children are reaching their adolescence. According to you, what are the expenses which are likely to increase in the family?
2. Anita has opened a restaurant. How can she use her cooking skills to:
  - a) Increase her income
  - b) Increase her savings

### Did You Know?

#### How to make a spending plan?

Use the following steps to make your spending plan:

1. **Consider all the income and facilities** for the period for which you are making the spending plan.
2. **Find out total income by adding:**
  - a) all the income of family members, rent if any, etc. and
  - b) facilities available to the family eg. personal allowance, travel allowance.
3. **List all the requirements of the family** in terms of:
  - a) Commodities - food, clothes
  - b) Services - electricity, water
4. **Prioritize these needs.** These decisions will be based on your total income and your goals in life.
5. **Allocate funds** keeping in mind the total income. List all the items of expenditure and allot money to each of them. Keep some amount of the total money as savings. It is advisable to save about 10% of the monthly income.
6. **Balance the spending plan.** The main aim in this is to make the expenditure less than the income. This can be achieved in two ways:-
  - a. Try to increase income - by making maximum use of the resources available to you.
  - b. Cut down the expenditure - by using public transport, doing your household work yourself etc.

### Maximize your marks

When making a spending plan:

- survey market rates so that you make correct estimates and compare prices;
- talk to all family members to determine their needs and
- read the characteristics of budget in detail for best results

## LIFE BEGINS

L.No	Title of Lesson	SKILLS	Activity
17	Life Begins	Empathy, Problem Solving, Decision Making, Coping with Stress & Emotion	Care of the pregnant women, foetus and infant

### Summary

A foetus remains in the mother's womb for about nine months (280 days). This is called the **prenatal period**, which begins with conception and ends with birth. Pregnancy can be divided into **three trimesters**—3 periods of 3 months each. During each trimester distinct changes take place and rapid growth and development takes place. The growing foetus, although well protected inside the womb, is affected by certain factors. Pregnant woman becomes extremely vulnerable during the period of pregnancy and child birth. Therefore, she needs a lot of care and support from the people around her. She should get regular medical check up, eat nutritious food, do regular exercise and get adequate rest.

The baby should be delivered in a **health institution**, which can be a hospital or public health centre (PHC or a private nursing home) or by a trained health attendant. All the rules of cleanliness should be followed at the time of delivery.

Care after the delivery is also important for both newborn baby and the mother. The baby needs to be **immunized** against preventable infectious diseases. Besides observing the rules of cleanliness for both mother and the baby, their feeding also needs proper attention by the family. The baby should be fed mother's milk from the first hour after birth till at least 6 months thereafter. Babies who are fed breast milk are healthier, grow stronger and have good immunity. Mothers should have an adequate and balanced diet while they are breast feeding.

**Planning your family** means that the parents can decide when to start and multiply their family. It also means that there should be an adequate age gap between two children in a family, so that both, mother and children stay healthy and raising children is a stress-free process for the parents.

### Principal Points

**During pregnancy**, the family must ensure that the following are taken care of:

1. Regular medical check-up,
2. Adequate nutritious food
3. Ideal increase in weight,
4. Timely and regular intake of medicines
5. Appropriate clothes i.e. comfortable & free-flowing
6. Regular exercise and proper rest

**After Child birth**, the family must ensure that the following are taken care of:

1. Hygiene for the baby and mother
2. Immunization
3. Nutrition
  - Balanced & Nutritious diet for the mother
  - Breast feeding for the baby

### Build Your Understanding

**Pregnancy** is an important period in any woman's life. Adequate care of the woman is crucial during pregnancy, delivery and after the child is born. Support from the family and community to the pregnant woman is essential for the health of the mother and the baby.

### What's Important to Know?

- The growing foetus, although well protected inside the womb, is affected by certain factors:
  - Mother's emotional state:** A happy mother gives birth to a happy baby.
  - Mother's diet:** A mother must take a nutritious diet so that her baby gets proper nutrition to grow.
  - Age of mother:** The right age to have a baby is when the mother is between 20 and 35 years of age.
  - Medicines:** Prescribed medicines from a good doctor helps mother and baby to be fit and healthy.
  - Disease, germs that affect the foetus:** Mothers must be careful during pregnancy and avoid catching infections.
  - Drugs, alcohol and smoking:** Smoke from cigarette or 'bidi', chemicals from alcohol or drugs like 'afeem' (morphine) can cause major damage to the foetus as well as mother.
- Delivery by trained health personnel is important.** It should be preferably in a health centre. During delivery 5 'C' rules should be followed, which are:
  - Clean hands and fingernails;
  - Clean surface for delivery;
  - Clean sheet;
  - Clean all items to be used for delivery with antiseptic solution;
  - Clean cutting of the umbilical cord with a new blade and tying with new (fresh) thread.

### Evaluate Yourself

- Savitriji's daughter-in-law is pregnant. List four things that she and her family should do to ensure the birth of a healthy child.
- List the vaccines recommended for a new born baby under the National Immunization Schedule. State the diseases that they prevent.

### Did You Know?

- The sex of a foetus is determined by the combination of sex chromosomes of mother and father.
- Expected Date of Delivery can be calculated by adding 9 months + 7 days to the first day of last menstrual period.
- An ultrasound is a safe technique where sound waves of very high frequency are used to check the growth and development of the foetus. Some parents and doctors misuse this facility to determine the sex of the foetus and terminate the pregnancy if it is found to be female. This is called **female foeticide**. This practice is legally banned in our country.
- Acute heartburn, swelling of the lower legs, diabetes or hypertension during pregnancy may lead to severe pregnancy complications and cause maternal or foetal deaths.
- A mother's breast produces yellowish fluid called '**colostrum**' for the first few days after delivery. It is very important to feed colostrum to the baby for a good health in life.

### Extend Your Horizon

Care of the newborn (first one month after birth) and later in the year is very essential. This includes keeping the baby warm after birth, exclusively breastfeeding, and timely and completed immunization.

### Maximize your marks

Do the activities suggested in the lesson to get clear understanding of the topic. Learn the National Immunization Schedule table.

## CONCEPT OF DEVELOPMENT

L.No	Title of Lesson	SKILLS	Activity
18	Concept of Development	Self Awareness, Empathy, Interpersonal Relationship, Effective Communication, Critical Thinking, Problem Solving, Decision Making, Coping with Stress and Coping with Emotion	Understanding development and factors affecting human development

### Summary

**Growth** means increase in weight, height (length) and changes in body proportions. It refers to quantitative changes e.g. how tall a child has grown over a specific period of time. **Development** is not only the physical changes but also the social, cognitive, mental and emotional changes that occur in ones' body.

**Heredity** is the traits with which a person is born. These traits are acquired from ones' parents. A child's capabilities/potentials are determined by heredity. But the extent to which an individual develops these capabilities depends upon the opportunities in the **environment**.

Development is controlled by certain **principles** which are applicable to all individuals.

**Both heredity and environment are powerful factors** that influence an individual. A few of the environmental factors affecting development are nutrition, early stimulation and child rearing practices.

#### Types of development:

**Physical development:** It is not only the gain in height and weight but also includes development of **gross motor skills**, such as walking, jumping, running, catching and the **fine motor skills** for painting, drawing, doing up buttons, using a spoon and writing.

**Cognitive development:** It focuses on how children learn and process information using their senses (seeing, listening, touching, smelling and tasting), registering information in their minds and efficiently taking it back from their memory.

**Social and emotional development:** It refers to the development of social skills like sharing, cooperation, patience etc. in their interaction with peers and others. Emotional development is the ability to control and manage one's emotions.

**Language development:** It refers to development of writing, speaking, sign language, facial expressions, gestures, and several art forms for communication.

### Principal Points

#### Factors influencing development:

Some environmental factors affecting development of an individual are:

- **Nutrition:** 'We are what we eat' – eating too much or too little – healthy or unhealthy affects our growth and development.
- **Early Stimulation:** A stimulating environment encourages the development of the child's heredity potentials.
- **Child rearing practices:** Children brought up by democratic or even firm parents are likely to make better personal and social adjustments.

### Build Your Understanding

Both **heredity** and **environment** are powerful factors that influence an individual.

- While we can do very little about the heredity of an individual, the environment can be controlled to make it more favourable for an individual's growth.
- Inherited factors interact with environmental influences to determine children's personality and individual differences in them.



### What's Important to Know?

#### Gross Motor Development

Gross motor development refers to control over large muscles. These muscles help performing functions such as crawling, standing, walking, climbing and running. Following are some of the Skills which a child can perform at different ages:

#### Infancy

- 3 months - Neck holding
- 5 months - Sitting with support
- 8 months - Sitting without support
- 9 months - Standing with support
- 11 months - Crawling/creeping
- 12 months - Standing without support
- 12 months - Walking with support
- 13 months - Walking without support
- 18 months - Running
- 24 months - Climbing staircase
- 36 months - Riding tricycle

#### Early Childhood

- 2 years - Climbing stairs and Tri-cycling
- 5 years - Jumping from height
- 5-6 years - Running
- 6 Years - ball throwing and catching

#### Fine Motor Development

Fine motor development involves the use of small muscles. These muscles help performing functions such as holding things, buttoning and zipping, drawing and writing. Following are some of the Skills which a child can perform at different ages:

#### Infancy

- 4 months - Grasping a rattle/ring when placed in hand
- 5 months - Reaching out to an object and holding it with both hands
- 7 months - Holding objects with crude grasp from palm
- 9 months - Holding small objects between index finger and thumb

#### Early childhood

- 2 ½- 5 years - copy simple geometric figures.
- 5 years - Self-feeding, dressing and grooming, can write his/her name in capital letters.

### Did You Know?

- Development is governed by certain principles which are applicable to all individuals.
- A child gets his/her first complete set of temporary teeth/milk teeth by the age of 3 years.
- At the age of 5-6 years, temporary teeth start getting replaced by permanent teeth.
- There are three types of body structure:
  - **Endomorphic** i.e. children who have a flabby, fat body build.
  - **Mesomorphic** i.e. children with a sturdy muscular body build. They have a tendency to be heavy, hard and rectangular.
  - **Ectomorphic** i.e. children who have a long and slender body build.

### Extend Your Horizon

The early years of life present a unique opportunity to lay the foundation for healthy development. Research on early childhood has shown the impact of the first five years of a child's life on his/her development. Negative early experiences can harm children's mental health and affect their cognitive, behavioral, social-emotional development.

### Evaluate Yourself

1. Children who are taller for their age during early childhood years are taller during adulthood also. By this observation, which principle of development is proved? Explain in your own words.
2. Good emotional development helps in establishing cordial relationships. Justify the statement in 60 words.

### Maximize your marks

Do the activities suggested in the lesson to get clear understanding of the topic.  
Carefully study the table describing various stages of growth and development.  
Learn the Principles of Development.

## MY FAMILY AND I

L.No	Title of Lesson	SKILLS	Activity
19	My family and I	Self Awareness, Empathy, Interpersonal Relationship, Effective Communication, Problem Solving, Decision Making, Coping with Stress, Coping with Emotion	Understanding family, how it functions and how to take care of relations?

### Summary

Traditionally, a family has been defined as a fundamental unit of society where two or more people are related to each other either by marriage, blood or adoption and share a common roof, kitchen and source of income.

**Nuclear family:** When a family consists of a couple and their children

**Joint family:** When there are parents and siblings of the couple living together

There are three stages in the life cycle of a family -

- 1. Beginning stage:** The life cycle of a family begins with 'youth'. This is the stage of life when individuals gain their identity and emerge as independent young adults. They get married, which is an important milestone in life. It should not happen before a girl is eighteen and the boy is twenty one years old.
- 2. Expanding stage:** It starts with the birth of the first child. This brings many additional demands and responsibilities with it. The couple should be physically, mentally, emotionally and financially prepared to handle these demands.
- 3. Contracting stage:** The couple may retire from their jobs, start pursuing some hobbies, participate in community services and enjoy the company of their grand children.

Family members need proper care at various stages of their life, be it when a woman is becoming mother, during infancy, childhood, adolescence and old age.

### Principal Points

#### Functions of family

A family provides the following to all its members:

- Protection from any danger to life
- Opportunities for emotional bonding among its members
- Financial and emotional security
- Facilities for preparation for life through education
- Medium for transfer of socio-cultural values
- Recreation

A family provides unconditional love, values in life, care and support to all its members. We should appreciate this and not take our families for granted.

### Build Your Understanding

Various factors that contribute in strengthening the **Family relations** are:

- a clear understanding of one's duties and responsibilities;
- feeling of empathy towards all family members;
- effective verbal and non-verbal communication Skills;
- genuine concern and love for others; extending help to others whenever necessary.

### What's Important to Know?

We should take care of our family members at all times. Consider the following points to ensure this during various phases in life:

- **Care during Pregnancy:** A family should ensure that the woman:
  - eats nutritious food at frequent intervals;
  - takes adequate rest and exercise;
  - is happy and cheerful; and
  - visits her doctor regularly.
- **Care during Infancy:** The essential tasks of caring for the baby include feeding, loving, clothing and bathing the baby. When both parents work outside home, grandparents or relatives and friends can take care of the baby.
- **Care of Young Children:** Child needs-early stimulation, appropriate and adequate play opportunities, discipline at home by teaching self control, and proper nourishment.
- **Caring for older children:** While children are gradually learning to manage they require:
  - support in academic tasks;
  - adequate facilities to play; and
  - adequate nutrition and also need support to develop good eating habits.
- **Adolescents:** Although they are moving towards independence, they need warm and supportive atmosphere. And display of confidence in the adolescent.
- **Settling Grown up Children:** Family may start helping children in preparation for the career of their choice. And also help them to select proper career.
- **Care for the Elderly:** Elders require support system after retirement, especially, if they are not financially well off. Elderly also need family support for day-to-day work as they become frail.

### Maximize your marks

- Do the activities suggested in the lesson to build a clear understanding of the topic.
- Carefully read and build understanding on family lifecycle.

### Did You Know?

- Life Skills essentially help you to improve the quality of your life. Enhancing and using these Life Skills is the key to a successful family life.
- Traditionally, children observe their elders and imbibe values like respect for elders, honesty, truthfulness and humility.
- We must provide a favourable atmosphere for young people to observe and imbibe those values which are generally accepted by society.
- Concern for older people should be developed in family members. We can support the elderly in the following ways:
  - Help them in doing tasks they are not able to perform.
  - Spend time with them to make them feel comfortable.
  - Provide moral support by being with them.
  - Encourage them to take care of themselves.
  - Be sensitive to their nutritional and medical needs.
  - Involve them in decision making.
  - Respect their views and opinions.

### Extend Your Horizon

As a child grows, it becomes essential to teach the child 'self control', which is taught through disciplining the child. Parents generally use any one of the three or sometimes a mix of all **Parenting Styles – Autocratic; Democratic and Permissive**. Read about the three parenting styles. Which one do you consider to be the best?

### Evaluate Yourself

1. Your neighbour Raghav, wants to help his grandparents in their elderly stage of life. Tell him how to care for the elderly as stated in the chapter.
2. Describe the role of parents towards infants, school going children and adolescents to facilitate their development.

## ADOLESCENCE: CHARMS AND CHALLENGES

L.No	Title of Lesson	SKILLS	Activity
20	Adolescence: Charms and Challenges	Self Awareness, Empathy, Interpersonal Relationship, Effective Communication, Problem Solving, Decision Making, Coping with Stress and Coping with emotion	Understanding Adolescence and its phases

### Summary

**Adolescence** is the transitional stage between childhood and adulthood. It is the age between 10-19 years. Though the timing and pace of changes may vary among individuals, these can be broadly categorised as **physical, emotional, social and cognitive development**.

**Physical development:** During adolescence, physical development begins with puberty, which means beginning of sexual maturity. Menstruation in girls and nocturnal emission in boys are natural phenomenon. There are many myths related to it. You should make informed and responsible choices rather than follow these myths blindly.

**Emotional Development:** It means developing an ability to manage emotions and to express them positive and responsible ways. Almost all adolescents go through a stage of rebelling against restrictions. Angry outbursts and mood swings are quite common in this stage.

**Social Development:** It refers to the interaction of adolescents with their family, peers and others. As children transform into adolescents and later to adulthood, their social relationships undergo many changes.

**Cognitive development:** This refers to the development of brain, which facilitates adolescents to perform more complex mental functions. For example:

- They are able to do abstract thinking, means, at this stage they can imagine the impossible.
- Personal fable: At this stage adolescents think that they are unique and nothing bad can happen to them.
- They are able to think systematically.

One of the main characteristic of adolescence is **idealism**. Adolescents imagine that everyone is watching them. They are influenced by social norms, culture of the world and mass media. They copy popular language, clothes, music and dance. Towards later adolescence comes the time when you need to choose and prepare for a career. Try to explore avenues available around you. You can get relevant information from parents and employees from specific fields, career guidance websites and weekly sections of many magazines and newspapers.

### Principal Points

Adolescents start distancing themselves from their families. They start valuing their peers more than before. Besides being the responsibility of parents to make efforts for having good relations with adolescents, it is also the duty of adolescents to maintain good relationship with their parents. They should listen to their parents' opinions, think through their suggestions carefully and then put forth their views and feelings clearly and in a respectful manner.

They must share their feelings with parents and establish an open channel of communication. They must be courteous to their parents. For a healthy relationship, they need to understand their parents.

### Build Your Understanding

Building of positive self concept is very important for the personality development.

**Self concept** means the way in which you see your strengths and weaknesses. Self concept is said to be low when you see only your weaknesses and it is high when you look at your strengths and want to improve yourself.

**Self-esteem** is your personal judgment of your abilities. In other words, if you have high self esteem, you have more belief in your abilities. Positive self concept leads to higher self esteem.

### What's Important to Know?

**Physical development:** This period is marked by physical growth and changes in body shape.

**Emotional Development:** Adolescents feel as if they are sitting on an emotional seesaw, feeling up one minute and down the next; feeling mature on some days and child-like on others. Though each person is unique and has different responses to stress.

**Social Development:** Adolescents develop a strong sense of selfhood and have their own views and feelings about various issues. In their effort to become independent and develop their own identity, they slowly start taking their own decisions.

**Cognitive Development:** It is concerned with the development of a person's thought processes. It deals with the way these thought processes influence how we understand and interact with the world. Adolescence develop their thinking process through the following:

- *Abstract thinking:* At this stage, they can imagine the impossible.
- *Personal fable:* Adolescents think that they are unique and nothing bad can happen to them. This is one of the reasons for them to take risks. Adolescents are energetic and spontaneous in nature and try new things without fear.
- *Systematic thinking:* If asked to take a decision, adolescents are able to list and examine various alternatives and the consequences of each alternative, before choosing any one.
- *Idealism:* They have a strong sense of right and wrong. They develop awareness about themselves and their surroundings with a strong sense of pride.
- *Imaginary audience:* Adolescents imagine that everyone is watching them. They become more aware of their surroundings.

### Did You Know?

- During adolescence, almost 75% of adult height and about 50% of adult weight is gained.
- Voice changes during adolescence because of the growth of Larynx. In a boy, it grows by about 60%. A bigger larynx makes a lower sound.
- A girl can get pregnant before her menstrual cycle begins as she releases an egg before her first period. Ovulation occurs when a mature egg is released from the ovary, pushed down the fallopian tube, and is available to be fertilized. This may happen before the first menstrual cycle, so the egg could be fertilized if sexual intercourse occurs close to your period.

### Extend Your Horizon

There are various myths and misconceptions related to adolescence. List the ones stated in the chapter. Discuss them with your friends.

### Evaluate Yourself

1. Sudha is very conscious of her dark complexion. She avoids interacting with people. Give four suggestions to Sudha which can help build a positive self esteem.
2. Cite a situation where you experienced a conflict between what you wanted to do and what was expected of you. How did you resolve the situation?

### Maximize your marks

Read the case studies carefully and perform activities suggested in the lesson to build a clear understanding of the topic.

## ETHICS IN DAILY LIFE

L.No	Title of Lesson	SKILLS	Activity
21	Ethics in daily life	Self Awareness, Empathy, Interpersonal Relationship, Effective communication, Critical Thinking, Problem Solving and Decision Making, Coping with Stress and Coping with Emotion	Importance of ethics and values in our lives

### Summary

Ethics and values are two very important aspects of everyday life. Values helps in developing a conscience; and this conscience helps in choosing the action.

**Values** are ideas and beliefs learnt from childhood from our parents and environment.

**Ethics** test our values and influence our behaviour in different situations.

It is important that each one of us follows values in every sphere of life. If we don't follow them, there will be; loss of life property, no law and order, increase in crime, neglect of women, children and other vulnerable members of the society and indiscreet use and wastage of resources.

There will be total imbalance in the society. Crime and chaos will rule. Hence, it becomes our responsibility as an individual to live ethically.

### Principal Points

- Our right is also our responsibility! - Responsibilities and rights go together and help in creating conducive environment
- Respect – Give it! Get it! - It is important to RESPECT ELDERS. But in case they make you feel uncomfortable, or take undue advantage of your respect, do not hesitate to confide in a trusted adult.
- Dignity of labor- one should respect all jobs equally and does not consider one superior to another. Rather than depending upon others it is better to earn one's own living and that too by honest means.
- Positive behaviour –helps to cope up with the day to day life. It brings optimism and makes it easier to avoid negative thinking and worries. It also helps to develop and maintain healthy life style.

### Build Your Understanding

#### Need and importance of Ethics-

- To preserve life and property
- To prevent break down of families
- To maintain law and order
- To check crime and corruption
- To prevent alcohol and drug abuse
- To prevent abusing women, children and elderly
- To ensure judicious use of resources

### What's Important to Know?

It is important for each one of us to possess a set of values in life to maintain conducive atmosphere. Likewise, it is important for an employee to possess a set of values to maintain conducive atmosphere at the workplace. It is important to know these values in life and at workplace.

Values of life	Values at workplace
Honesty & Loyalty	Honesty & Loyalty for the organization
Respect for work	Respect for work assigned
Punctuality, Regularity and discipline	Punctuality, Regularity & discipline
Courtesy and politeness	Courtesy and politeness with co-workers
Judicious use of resources	Judicious use of resources
Taking initiative	Willingness to take up new tasks
Efficiency in completing tasks	Efficiency in completing tasks

### Did You Know?

Values and ethics are two different aspects.

**Values** are our ideas and beliefs; taught by our parents; guiding factors of our decisions; and basis of our action and behavior.

**Ethics**, on the other hand test our values and behavior in difficult situation.

### Extend Your Horizon

- Think of how you can help or work with people with special needs.
- Think of four life skills you have used when your brother/ sister was sick.

### Evaluate Yourself

1. A man saw an injured person bleeding on the road. He took him to the hospital. List and briefly describe values and life skills involved in his gesture?
2. List some values you already have or want to add in your personality.

### Maximize your marks

- Compare signs of disrespect and respect.
- Learn the definitions given in the lesson.
- Understand the values through case studies given in the lesson

## CONSUMER! BEWARE, BE AWARE!

L.No	Title of Lesson	SKILLS	Activity
22	Consumer! Beware, Be Aware!	SelfAwareness, Empathy, Interpersonal Relationship, Effective Communication, Problem Solving, Decision Making Coping with Stress & Emotion	Awareness about consumer rights and consumer responsibilities

### Summary

A **consumer** is a person who buys or uses either goods or services, to satisfy her/ his needs.

The **CPA (Consumer Protection Act 1986)** clearly identifies two categories of consumers:

- (i) One who buys and uses any goods
- (ii) One who hires or avails of any service for personal use

As consumers, we face a lot of problems. Some common problems are:

- Price variation
- Lack of standardization
- Imitation
- Adulteration
- Black-marketing

To tackle these problems, consumer needs to be aware. Such awareness can be brought about by proper education. Consumers need to be educated on what, when, how much, where to buy and how to pay for their purchases. They must get the best returns for the money spent. A lot of these decisions depend upon what the consumers see or hear.

A consumer aid is anything written or illustrated that helps and guides a consumer in selecting a product he/she wants to buy. Some examples of consumer aids are labels, packaging and advertisements.

A consumer also has certain rights and responsibilities. Knowledge about these will help the consumer to fight against the various malpractices adopted by salesmen and manufactures.

### Principal Points

A **consumer aid** is anything written or illustrated that helps and guides a consumer in selecting a product he/she wants to buy. Consumer aids are-

- **Labels:** They are used on packaged products
- **Leaflets-** provide the cost and instructions for installation and maintenance.
- **Packages:** They protect product from damage and breakage.
- **Advertisements:** They give information about the use and special features of the product.
- **Standardized marks:** They indicate whether a product has been produced in accordance with the norms laid down by the standardizing agency.
- **Legislation:** These refer to the laws passed by the government to protect consumer interests eg. CPA
- **Consumer Organizations-** educate consumers on various issues and work for their welfare.



**Build Your Understanding**

Your Rights as a consumer help you to fight against the various malpractices adopted by salesmen and manufacturers. These are:

- Right to Safety
- Right to Information
- Right to Be Heard
- Right to Choose
- Right to Redressal
- Right to Consumer Education
- Right to Represent
- Right to Basic Needs
- Right to Healthy Environment

**Did You Know?**

**Consumer Court** deals with cases regarding consumer disputes and grievances. These are judiciary set ups by the government to protect the consumer rights. Their main function is to maintain the fair practices by the sellers towards consumers. They are at National level, State level and District level.

**Extend Your Horizon**

There is a garbage dump near your house which has not been cleared for a month. In this situation, which consumer right is violated? What action will you take as a responsible consumer?

**What's Important to Know?**

Some common problems and their solutions faced by consumers: (make a grid for the following)

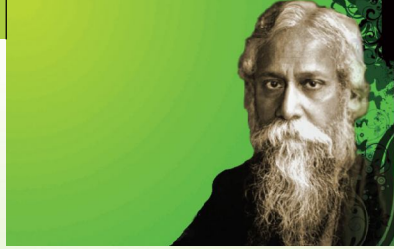
<u>PROBLEMS</u>	<u>SOLUTION</u>
1) <b>Price variation</b> -shopkeepers often charge more than M.R.P	1) M.R.P. is inclusive of all taxes . Never pay more than M.R.P.
2) <b>Lack of standardized products</b> -shopkeepers promote substandard products because they get high commission on them.	2) Compare features of a few brands of the product. Check out the differences and make a wise choice.
3) <b>Imitation</b> – Popular brands are often imitated to gain popularity.	3) Compare and note the differences in the quality of the popular as well as the imitated brand.
4) <b>Adulteration</b> – manufacturers and shopkeepers intentionally adulterate food products.	4) Do simple adulteration test at home or get doubtful samples tested at P.F.A. Buy sealed products of reputed brands.
5) <b>Non-availability, black marketing and hoarding</b> – Before the annual budget and festivals, shopkeepers hoard stocks, so that they can later sell and earn higher profits.	5) When in short supply , shift to a different brand or use an alternate product e.g. use jaggery instead of sugar.
6) <b>Defective weights and measures</b> –often use stones instead of proper weights or stick magnets under the balance.	6) Check weights and measures before buying any product.

**Evaluate Yourself**

1. Mention any two responsibilities you should fulfill to maintain a healthy environment.
2. Advise your friend three practices he/she should follow to keep away from adulterated food.

**Maximize your marks**

Do the activities suggested and answer questions in the lesson to build a understanding of the topic.



## Mind Without Fear

Where the mind is without fear and the head is held high;  
Where knowledge is free;  
Where the world has not been broken up  
into fragments by narrow domestic walls;  
Where words come out from the depth of truth;  
Where tireless striving stretches its arms towards perfection;  
Where the clear stream of reason  
has not lost its way into the dreary desert sand of dead habit;  
Where the mind is led forward by thee  
into ever-widening thought and action  
Into that heaven of freedom, my Father, let my country awake.

— *Gurudev Rabindranath Tagore*



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