

BUILDING HEALTHY CITIES



TEACHERS TRAINING GUIDELINES FOR HEALTH PROMOTING SCHOOLS

Version 2.0



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Building Healthy Cities

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INTRODUCTION

Health Promoting Schools

According to the data presented by the World Bank, 27 percent of India's population is between 0–14 years (World Bank 2019). The Unified District Information System for Education 2015–16 school enrollment data reveal that the gross enrollment ratio at primary level is 99.2 percent, whereas at upper primary, secondary, and senior secondary levels, it is 92.8 percent; 80 percent; and 56.2 percent respectively (Ministry of Statistics and Programme Implementation n.d.). Some of this drop-off is due to social norms, such as the fact that approximately one-quarter of girls are married before the age of 18 (United Nations Children's Fund 2019). In addition to falling enrollment rates, government schools also face infrastructure challenges, such as a lack of gendered toilet facilities and space for physical activity.

Adolescents have myriad health concerns. According to National Mental Health Survey (2015–16), the prevalence of mental disorders in 13–17-year age group was 7.3 percent and nearly equal in both genders. Nearly 9.8 million young Indians aged between 13–17 years are in need of active interventions. The prevalence of mental disorders is nearly twice as much in urban metros (13.5 percent) as compared to rural areas (6.9 percent) (National Institute of Mental Health and Neuro Sciences 2016). A survey by National Sample Survey Organization of the Indian Government showed that about 20 million children aged 10–14 years were estimated to be addicted to tobacco (Ministry of Statistics and Programme Implementation n.d.). Under the Protection of Children from Sexual Offences Act 2012, crimes reported are as high as 34 percent of total crime against children (National Crime Records Bureau 2018). Malnutrition also continues to be a major issue, with a recent UNICEF report finding that over 80 percent of adolescents suffer from 'hidden hunger,' or micronutrient deficiencies (UNICEF 2019a). Indian policy makers and public health professionals must focus on a seemingly endless list of health-impacting behaviors and conditions.

Young people are one of India's precious resources, yet their health and safety as they grow and develop is affected by several intrinsic and extrinsic factors. The World Health Organization first advocated health promoting schools (HPS), which it defines as those that strengthen capacity as a healthy setting for living, learning, and working (World Health Organization n.d.). The Bhore Committee in 1946 (Kaur et al. 2015) stated that school's goal is to promote the maximum physical, social, emotional, mental, and educational growth of students by adopting health promoting policies and practices.

Health Behaviors and Problems Among Young People in India

Between 10 and 30 percent of young people are affected by health-impacting behaviors and conditions that need urgent attention of policy makers and public health professionals. Nutritional disorders (both under- and over-nutrition), tobacco use, alcohol and other substance use, high-risk sexual behaviors, stress, common mental health disorders, and injuries (road traffic, suicides, violence) affect this population and have long lasting impact. Multiple behaviors and conditions often coexist in the same individual, adding a cumulative risk for his/her poor health. Many of these precursors and determinants of noncommunicable diseases (NCDs), including mental and neurological disorders and injuries, place a heavy burden on Indian society in terms of mortality, morbidity, disability, and socio-economic losses. Many health policies and programs have focused on prioritizing individual health problems and integrated approaches are lacking. Healthy lifestyle and health promotion policies and programs, driven by robust population-based studies, are required in India, which will also address the growing tide of NCDs and injuries.

Why Should We Care About School Health Education?

- Worldwide, 5 percent of all deaths in young people between the age of 15 and 29 are attributable to alcohol use.
- Worm infections are the greatest cause of diseases among children 5–14 years old.
- Vitamin A deficiency is the greatest cause of preventable childhood blindness.
- Iodine deficiency is the most common preventable cause of intellectual disability and brain damage in children.
- Injury is a leading cause of death and disability among school-age youth.
- One out of two young people who starts and continues to smoke will die of tobacco-related illness.

What is a Health Promoting School?

According to WHO, an HPS is recognizable by the following attributes:

- Constantly strengthens its capacity as a healthy setting for living, learning, and working.
- Fosters health and learning with all the measures at its disposal.
- Engages health and education officials, teachers, teachers' unions, students, parents, health providers, and community leaders in efforts to make the school a healthy place.
- Strives to provide a healthy environment, health education, and health services along with school/community projects and outreach, health promotion programs for staff, nutrition and food safety programs, opportunities for physical education and

recreation, and programs for counseling, social support, and mental health promotion.

- Implements policies and practices that respect an individual's well-being and dignity, provides multiple opportunities for success in life, and acknowledges good efforts and intentions as well as personal achievements.
- Strives to improve the health of school personnel, families, and community members as well as pupils; and works with community leaders to help them understand how the community contributes to, or undermines, health and education.

What is Health Education?

- Health education teaches knowledge, skills and habits to people so that they can be healthy. It also helps people cope with changing physical and emotional conditions.
- Health education is any combination of learning experiences designed to help individuals and communities improve their health by increasing their knowledge or influencing their attitudes.
- Health education identifies health-related needs and the behaviors to address those needs.

What are the Objectives of Health Education?

- To develop healthy attitudes and behaviors in students by providing skills-based education on health.
- To promote the maximum physical, social, emotional, mental, and educational growth of the students by adopting health-promoting policies.
- To aid early detection of communicable and NCDs and prevent health risks among students.

Why is Health Education Important?

- Most of the population is unaware of basic principles of health and sanitation.
- Health education provides information about scientific facts and methods. This is very helpful in preventing and mitigating the effects of many diseases.
- Health education increases awareness of different fatal diseases and methods for preventing them by:
 - Promoting well-being and healthy habits in society and family.
 - Promoting health and healthy habits in day-to-day life.
 - Sensitizing students about their health and helping them understand and treat social and personal health problems.
 - Increasing awareness of basic processes in the human body.
- Health education is becoming increasingly important. As media focuses on social and personal health problems, more people are becoming aware of and caring about their health. The provision of better health services has become a major social

objective of many countries, to ensure the well-being of people, which includes physical, mental, social and emotional health. This enables a person to become a healthy and a responsible citizen.

Noncommunicable Diseases

NCDs, also known as chronic diseases, tend to be of long duration and result from a combination of genetic, physiological, environmental, and behavior factors. Four major NCDs are diabetes, cardiovascular diseases, cancers, and chronic respiratory diseases. These diseases share common risk factors such as tobacco use, unhealthy diet, lack of physical activity, and excessive use of alcohol.

Important facts about NCDs in India are as follows (Nethan, Sinha, and Mehrotra 2017):

- NCDs have emerged as a leading cause of mortality and morbidity worldwide.
- NCDs are the result of complex interaction between health, economic growth and development, and lifestyle.
- Of the 38 million global deaths in 2012, 6 million were premature.
- In India, 5.2 million deaths are due to NCDs; this is the highest among all causes of mortality.
- Common modifiable risk factors for NCDs are unhealthy diet, sedentary lifestyle, and tobacco and alcohol use.
- Health promotion is a cost-effective strategy to bring down the burden of NCDs.

Communicable Diseases

Some diseases, such as common cold, malaria, tuberculosis, and diarrhea, are caused by germs, which are spread, or 'communicated,' from one person to another or from an animal to a person.

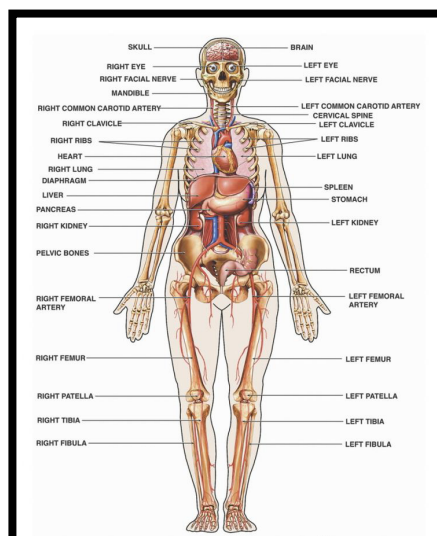
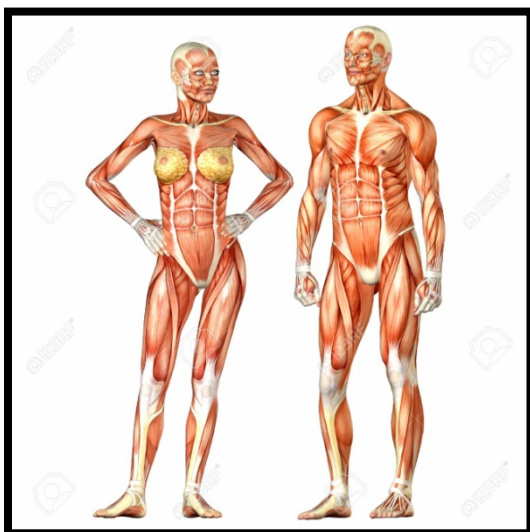
Training Session Chapters Cover the Following Themes

Know Your Body	<ul style="list-style-type: none"> • Impart knowledge to children about the human body to inculcate awareness and positive attitudes about health and well-being from an early age.
Food and Nutrition	<ul style="list-style-type: none"> • Educate children on importance of healthy food and incorporate healthy eating habits.
Personal and Public Hygiene	<ul style="list-style-type: none"> • Impart education on living healthy in a clean environment. • Emphasize the importance of maintaining personal hygiene and sanitation.
Harms of Tobacco, Alcohol, and Drugs	<ul style="list-style-type: none"> • Enhance knowledge, attitude, and practices of students, teachers, parents, and community about tobacco use and control laws.
Physical Activity	<ul style="list-style-type: none"> • Encourage sports as part of school activities.
Mental Health	<ul style="list-style-type: none"> • Increase awareness of mental health and sensitize children and teachers.
Environmental Education	<ul style="list-style-type: none"> • Encourage students, teachers, principals, and other staff to segregate day-to-day waste material into biodegradable and non-biodegradable wastes.
Life Skills and Behaviors	<ul style="list-style-type: none"> • Increase understanding of how every-day activities may involve several risky or unsafe behaviors and how to avoid them.
Sexual and Reproductive Hygiene	<ul style="list-style-type: none"> • Enhance knowledge about sexual and reproductive hygiene and prevention and management of sexually transmitted infections and related health risks.
Immunization	<ul style="list-style-type: none"> • Increase awareness of immunization.
Social Distancing	<ul style="list-style-type: none"> • Increase awareness among children on how to protect themselves and their families from communicable diseases.

CHAPTER 1: KNOW YOUR BODY

Learning Objectives

1. To improve understanding of the human body, and its functions and systems.
2. To improve understanding of the organs involved in each bodily system.



Session Includes

- Importance of the body
- Name of body parts (internal & external)
- Body systems, organs involved in each system, and their functions

Key Resources

- Training and Resource Material: Adolescent Education Program (NCERT 2013)
- Health and Physical Education Textbook (NCERT 2016)

Why is Our Body Important?

Our body gives us strength to carry out daily activities. We should take care of our body by eating a balanced diet and making time to work, rest, and play. If we do not take care of our body, we may not be able to enjoy life fully.

Definition of Body Systems

Body systems are groups of organs and tissues that work together to perform important jobs. Some organs may be part of more than one body system if they serve more than one function. Other organs and tissues serve a purpose in only one body system.

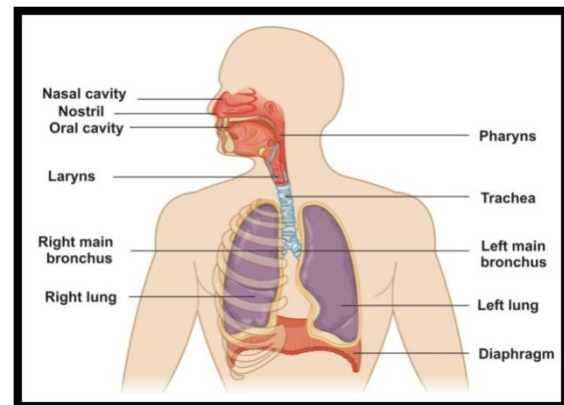
Our body systems are respiratory, digestive, cardiovascular/circulatory, renal/urinary, endocrine, nervous, musculoskeletal, integumentary/exocrine, reproductive, and lymphatic/immune.

Functions of the Systems

Respiratory system

Organs involved

- Nose
- Pharynx (back of mouth)
- Larynx (voice box)
- Trachea (windpipe)
- Bronchi and bronchioles (airways)
- Lungs
- Diaphragm



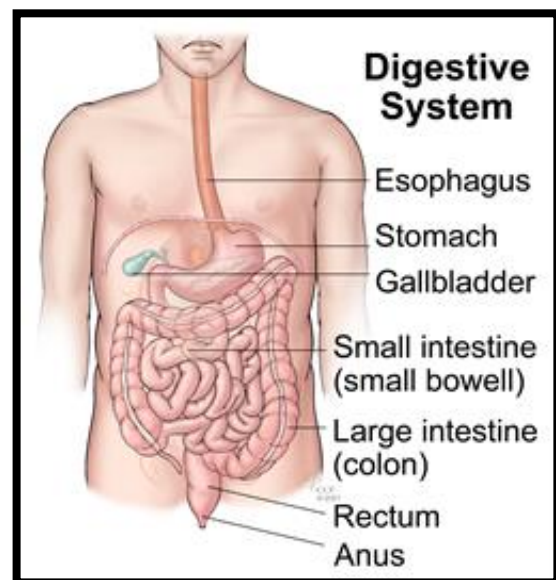
Functions

The respiratory system takes oxygen into lungs from the environment and converts it into a form that cells can use to function.

Digestive/excretory system

Organs involved

- Mouth
- Salivary glands
- Pharynx
- Esophagus
- Stomach
- Accessory digestive organs: liver, pancreas, gallbladder,
- Small intestine
- Large intestine
- Rectum



Functions

The digestive system ingests food and breaks it down into usable nutrients for absorption. It also excretes solid waste products.

Cardiovascular/circulatory system

Organs involved

- Heart (cardiovascular)
- Lungs (respiratory)
- Arteries, veins, coronary and portal vessels (pulmonary)

Functions

The circulatory system consists of three independent systems that work together to move materials including oxygen, hormones, and waste products.

Renal/urinary system

Organs involved

- Kidneys
- Ureters
- Bladder
- Urethra

Functions

The renal system cleans dissolved waste products from the blood and excretes them.

Endocrine system

Organs involved

- Major glands: hypothalamus, pituitary, thyroid, parathyroid, adrenals, pineal body
- Ovaries
- Testes
- Pancreas

Functions

The endocrine system secretes chemicals and signals that allow body systems to act cooperatively as needed.

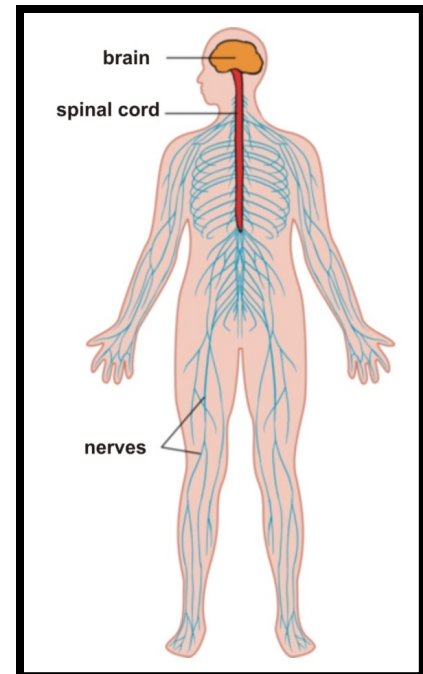
Nervous system

Organs involved

- Brain
- Spinal cord
- Sensory organs (eyes, ears, nose, tongue, skin)
- Nerves

Functions

The nervous system allows perception, emotion, thought, memory, and rapid response to the environment.



Musculoskeletal system

Organs involved

- Bones (the skeleton)
- Muscles
- Cartilage
- Tendons
- Ligaments
- Joints and other connective tissue

Functions

The musculoskeletal system supports the body, allowing motion and protecting vital organs. It also allows the body to move on command, produce blood cells, and store calcium.

Integumentary/exocrine system

Organs involved

- Skin
- Hair
- Nails
- Subcutaneous tissue below the skin
- Assorted glands

Functions

The exocrine system acts as a barrier to protect the body from the outside world. It also retains body fluids, protects against disease, eliminates waste products, and regulates body temperature.

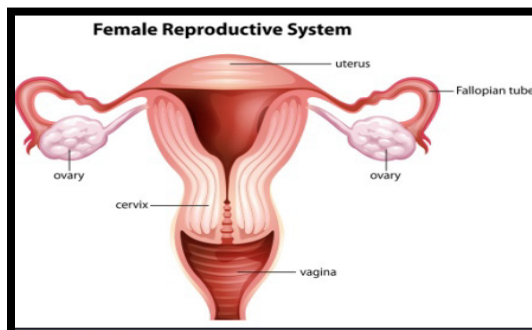
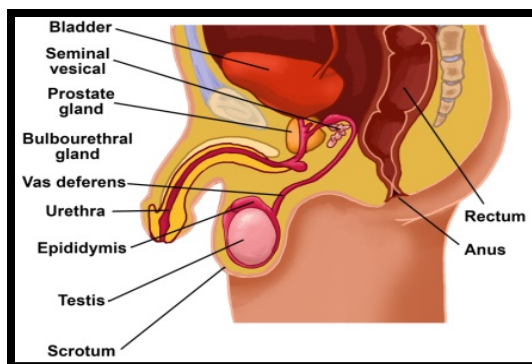
Reproductive system

Organs involved

- Male: Vas deferens, prostate gland, penis, and testes
- Female: Ovaries, uterus, mammary glands (breasts), vagina, cervix, fallopian tubes

Functions

The reproductive system allows for the production of offspring.



Lymphatic/immune system

Organs involved

- Thymus
- Bone marrow
- Spleen
- Tonsils
- Lymph vessels
- Lymph nodes
- Adenoids
- Skin
- Liver

Functions

The lymphatic system fights infections and prevents diseases from the body.

Practice Questions

1. What are the major organs of the digestive system?
2. What are the functions of nervous system?
3. Which body system fights infections and prevents our body from diseases?

Key Takeaways

- Teachers have increased knowledge about various body parts, systems, and functions, and are more comfortable discussing this with their students.
- Teachers understand the importance of making students aware of their own body and its functions.

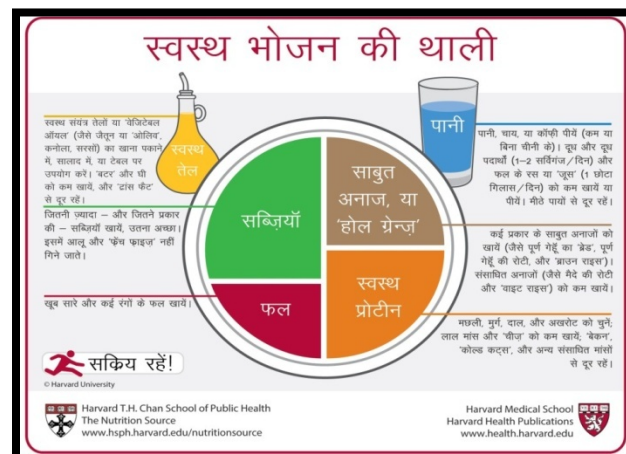
CHAPTER 2: FOOD & NUTRITION

Learning Objectives

- To improve knowledge of food and nutrition, including a balanced diet.
- To raise awareness about healthy eating habits, including concept of food pyramid and essential nutrients in various food items.

Session Includes

- Food
- Nutrition
- Nutrients and their sources
- Go, Grow, and Glow foods
- Caloric needs
- Food pyramid and balanced diet
- Nutritional requirements of adolescents
- Nutrition during first 1,000 days



Key Resources

- Human Ecology and Family Sciences (NCERT 2009)
- Food based dietary guidelines: India (FAO 2011)
- Nutrition blog post (Children for Health n.d.)

Source:
<https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/>

What is Food?

Food is any substance consumed to provide nutritional support for an organism. It is usually of plant or animal origin, and contains essential nutrients, such as carbohydrates, fats, proteins, vitamins, and minerals (National Health Research Institute n.d.).

Functions of food include:

- Provides energy.
- Provides necessary force for growth and development.
- Protects body from infections.

What is Nutrition?

Nutrition is the process of nourishing or being nourished, especially the process by which a living organism assimilates food and uses it for growth and replacement of tissues (WHO

n.d.). Nutrition is an essential component of a healthy lifestyle. Good nutrition is essential throughout infancy, childhood, and adolescence, since these phases of life are critical for growth and development. Good nutrition is also essential for maintenance of good health in adulthood. A healthy diet and lifestyle for both boys and girls throughout childhood and adolescence has a profound impact on their adulthood and the health and wellbeing of future generations. A person's diet and nutritional status has a multi-generational effect.

Nutrients and Their Sources

Nutrients are compounds in foods and are essential to life and health, providing us with energy, the building blocks for repair and growth, and substances necessary to regulate chemical processes. There are six essential nutrients that the body needs to function properly (Children for Health n.d.):

- Water
- Protein
- Carbohydrates
- Fats
- Vitamins
- Minerals

The WHO further divides these six essential nutrients into micronutrients and macronutrients (WHO n.d.):

- Micronutrients are nutrients that a person needs in small doses. Micronutrients consist of vitamins and minerals. Although the body only needs small amounts of them, a deficiency can cause ill health and they are extremely important for the normal functioning of the body. Their main function is to enable chemical reactions to occur in the body. Micronutrients do not function for the provision of energy.
- Macronutrients are nutrients that a person needs in larger amounts. Macronutrients include water, protein, carbohydrates, and fats. Macronutrients (except water) are also called energy-providing nutrients. Energy is measured in calories and is essential for the body to grow, repair, and develop new tissues; conduct nerve impulses; and regulate life process.

Go, Grow, and Glow Foods

Children for Health, a communication network focused on child health and nutrition, explains the Go, Grow, and Glow foods:

Go foods give us energy to be active, work, and learn each day. People who do physical labor, children, and pregnant and breastfeeding women need lots of these foods. Go foods include grains like maize, millet, rice, wheat, and sweet food like sugarcane, honey,

sugar, and roots like potato, yam, and sweet potato. Fats like margarine and oils are also Go foods.

Grow foods work in the body to help us grow and keep us strong and healthy. School-age children should grow a few centimeters and gain a few kilograms each year. Pregnant and breastfeeding women and anyone who is sick should also eat enough protein. Fish, meat, eggs, milk products, some grains, beans, seeds, and nuts are good examples of Grow foods.

Glow foods are rich in vitamins and minerals that help protect us from diseases by helping our bodies work well and fight off illness. Fruits and vegetables have good number of vitamins and minerals, which makes them good GLOW foods. Eating variety of fruits and vegetables help us get our daily dose of vitamins and minerals. Mango, banana, papaya, oranges, green leafy vegetables, okra, cauliflower, and pumpkin are all high in vitamins and minerals.

Caloric Needs

Low dietary intake over a long period can lead to malnutrition. Low intake of vitamins and minerals can also lead to specific disorders as mentioned in the table below.

Vitamin/mineral	Deficiency disease/disorder	Symptoms
Vitamin A	Night blindness	Poor vision, loss of vision in darkness, sometimes complete loss of vision
Vitamin B1	Beri beri	Weak muscles and very little energy to work
Vitamin C	Scurvy	Bleeding gums, wounds take longer to heal
Vitamin D	Rickets	Bones become soft and bent
Calcium	Bones and tooth decay	Weak bones, tooth decay
Iodine	Goiter	Glands in the neck appear swollen, intellectual disability in children
Iron	Anemia	Weakness, tiredness

Source: PMF IAS 2016

Sources of Essential Nutrients

Food groups	Nutrients	Source
Cereals and grains	Protein, invisible fat, vitamin B1, vitamin B2, folic acid, iron, fiber	Rice, wheat, ragi, bajra, maize, jowar, barley, rice flakes, wheat flour
Pulses and legumes	Protein, invisible fat, vitamins B1 and B2, folic acid, calcium, iron, fiber	Bengal gram, black gram, green gram, red gram, lentil (whole as well as dals) cowpea, peas, rajmah, soyabeans, beans
Milk and meat products	Protein, fat, vitamin B12, calcium, vitamin B2	Milk, curd, skimmed milk, cheese Chicken, liver, fish, egg, meat
Fruits and vegetables	Carotenoids, vitamins, fiber folic acid, calcium, iron	All fruits and vegetables
Fats and sugars	Fat, essential fatty acids	Butter, ghee, hydrogenated oils, cooking oils like groundnut, mustard, coconut Sugar, jaggery

Source: Tamil Nadu Agricultural University n.d.

Each nutrient performs one or more specific functions in the body. Practically all foods contain mixtures of nutrients. Except for breastmilk for infants, no single food contains all the nutrients in amounts sufficient to sustain life and promote optimal growth. One must consume a variety of foods daily to obtain all the necessary nutrients.

Understanding the Food Pyramid

A food pyramid is a representation of the optimal number of servings to be eaten each day from each of the basic food groups. Each nutrient performs one or more specific functions in the body. One must consume a variety of foods daily in order to obtain all the necessary nutrients.

As depicted in the image on the next page, the Food Pyramid groups the foods that contain the same type of nutrients, providing choices of foods for a healthy diet. The India food pyramid has four shelves which consists of: cereals and legumes, which should be eaten adequately, at the base; fruits and vegetables, which should be consumed liberally, at the second shelf; animal and dairy products, which should be eaten

moderately, at the third shelf; and sugar, fats and processed food, which should be consumed in very small quantity as they provide few or no essential nutrients, at the top (FAO 2011).

What is a Balanced Diet?

Humans need a certain number of calories and nutrients to stay healthy. A diet is what we consume all day. Whereas a balanced diet is one that contains different types of foods in such proportions and quantities so that the need for calories, proteins, minerals, vitamins, and other nutrients is adequately met. A balanced diet is important because our body needs proper nutrition to function effectively. Without good nutrition, the body is more prone to disease, infection, fatigue and poor performance. Eating a balanced diet helps people maintain good health and reduce their risks of diseases (Children for Health n.d.).



Source:

<http://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/India/en>

Empty calories

Empty calories come from saturated fats or added sugars. While food containing empty calories provide us with energy, it does not have other essential nutrients. As the name suggests, "empty" means that these foods provide nothing of value to our body beyond calories that lead to obesity. Examples of empty calorie foods include carbonated sugary beverages like Coca-Cola and Pepsi, and fast foods like pizza, burger, samosa, kachori, cake, and ice cream. To function properly our bodies need certain amounts of nutrients and calories, as explained below.

Recommended dietary allowance

The recommended dietary allowances (RDA) are the levels of intake of the essential nutrients that are judged to be adequate or sufficient to meet the nutrient requirement of nearly all (97 to 98 percent) healthy individuals in a particular life stage and gender group. There are various biological and non-biological factors that affect RDA. Biological factors include age, gender, growth, disease states, and genetic makeup. Among the non-biological factors, socio-economic status is the most important. Poverty is one of the major socio-economic causes of inadequate nutrient intake, and it also impacts nutrient

requirements (Nair and Augustine 2018). The RDA for Indians as suggested by National Institute of Nutrition, ICMR, Hyderabad is given below:

Recommended dietary allowances for Indians

Group	Particulars	Body weight kg	Net energy Kcal/d	Protein g/d	Visible fat g/day	Calcium mg/d	Iron mg/d	Vitamin $\mu\text{g/kg}$		Thiamine mg/d	Riboflavin mg/d	Nicotinic acid mg/d	Pyridoxine mg/d	Ascorbic acid mg/d	Free folic acid $\mu\text{g/d}$	Vit B12 $\mu\text{g/d}$
								Retinol	β carotene							
Man	Sedentary work	60	2425	60	20	400	28	600	2400	1.2	1.4	16	2.0	40	100	1
	Moderate work		2875							1.4	1.6	18				
	Heavy work		3800							1.6	1.9	21				
Woman	Sedentary work	50	1875	50	20	400	30	600	2400	0.9	1.1	12	2.0	40	100	1
	Moderate work		2225							1.1	1.3	14				
	Heavy work		2925							1.2	1.5	16				
	Pregnant woman	50	+ 300	+15	30	1000	38	600	2400	+0.2	+0.2	+2	2.5	40	400	1
	Lactation															
	0-6 months	50	+550	+25	45	1000	30	950	3800	+0.3	+0.3	+4	2.5	80	150	1.5
	6-12 months		+400	+18						+0.2	+0.2	+3				
Infants	0-6 months	5.4	108/kg	2.05/kg		500		350	1200	55 $\mu\text{g/kg}$	65 $\mu\text{g/kg}$	710 $\mu\text{g/kg}$	0.1	25	25	0.2
	6-12 months	8.6	98/kg	1.65/kg						50 $\mu\text{g/kg}$	60 $\mu\text{g/kg}$	650 $\mu\text{g/kg}$	0.4			
Children	1-3 years	12.2	1240	22	25	400	12	400	1600	0.6	0.7	8	0.9	40	30	0.2-1.0
	4-6 years	19.0	1690	30			18	400		0.9	1.0	11			40	
	7-9 years	26.9	1950	41			26	600		1.0	1.2	13	1.6		60	
Boys	10-12 years	35.4	2190	54	22	600	34	600	2400	1.1	1.3	15	1.6	40	70	0.2-1.0
Girls	10-12 years	31.5	1970	57			19			1.0	1.2	13				
Boys	13-15 years	47.8	2450	70	22	600	41	600	2400	1.2	1.5	16	2.0		100	0.2-1.0
Girls	13-15 years	46.7	2060	65			28			1.0	1.2	14				
Boys	16-18 years	57.1	2640	78			50	600	2400	1.3	1.6	17				0.2-1.0
Girls	16-18 years	49.9	2060	63		500	30			1.0	1.2	14	2.0	40	100	

Source : Gopalan, C, Rama Sastri B.V, and Balasubramanian, S.C., 2004, Nutritive Value of Indian Foods, National Institute of Nutrition, ICMR, Hyderabad.

India has a dual burden of public health problems. On one side are children and adolescents, particularly those from poor communities, who are wasted, stunted, anemic, and prone to common infections. On the other side is the problem of obesity and risk of lifestyle diseases due to unhealthy diet, coupled with lack of physical activity. There is a need to increase awareness regarding healthy food, physical exercise, and nutritional deficiencies among children and adolescents. There is a lot of confusion, especially among teenagers, when it comes to healthy weight. There is no one ideal weight for all as healthy weight varies by age, height, body frame, and gender, as indicated in the chart below.

Expected height and weight for age

	Boys		Girls	
Age (years)	Height (cm)	Weight (kg)	Height (cm)	Weight (kg)
10	1,375	31.4	138.3	32.5
11	1,433	35.3	144.8	37.0
12	1,497	39.8	151.5	41.5
13	1,565	45.0	157.1	46.1
14	1,631	50.8	160.4	53.3
15	1,690	56.7	161.8	53.7
16	1,735	62.1	162.4	55.9
17	1,762	66.3	163.1	56.7
18	1,768	68.9	163.7	56.6

Source: National Centre for Health Statistics (NCHS) Standards

A way to know the minimum number of calories you can consume on a daily basis is to calculate 37 Kcal for every kilogram (kg) you weigh. For example, if you weigh 50 kg, your daily caloric intake will be $50 \times 37 = 1,850$ Kcal/day.

Nutrient and Caloric Requirements of Adolescents

Due to the growth of the body's primary structure, the skeletal structure, it is critical that adolescents consume a calcium-rich diet, including dairy products or green leafy vegetables, on a daily basis.

Adolescent girls need additional amounts of iron. This is because menstruation begins in adolescence and women of the reproductive age lose an average of 30 ml blood per menstruation, corresponding to 0.5 mg iron per day over the month. Iron is important for good mental functioning and for body defense. It also helps prevent anemia, which is characterized by pale skin, fatigue, breathlessness, and lack of energy. Dried fruits, green leafy vegetables, meat, and fish are good sources of iron. The table below indicates the caloric and nutrient requirements of the Indian adolescents.

Age	Group	Calories Kcal/day	Protein gm/day	Fat gm/day	Calcium mg/day	Iron mg/day
10–12 years	Boys	2,190	39.9	35	800	21
	Girls	2,010	40.4	35		27
13–15 years	Boys	2,750	54.3	45		32
	Girls	2,330	51.9	40		27
16–17 years	Boys	3,020	61.5	50		28
	Girls	2,440	55.5	35		26

Source: ICMR, 2010

Important dietary considerations for adolescent boy and girls

India is home to 253 million adolescents and it is our responsibility as a nation to provide them with a healthy environment so that they can grow to their utmost potential. If we fail to do so, we will lose one of our most precious resources. Adolescence is a nutritionally vulnerable time because rapid physical growth increases nutrient demands. Poor dietary behaviors established in adolescence may contribute to nutrition-related problems that have consequences for long-term health. In India, 40 percent of girls and 18 percent of boys are anemic (UNICEF n.d.). Anemia among adolescents adversely affects growth, resistance to infections, cognitive development, and work productivity. Because of this, adolescents need special attention when it comes to their diet. Some recommendations from the National Institute of Nutrition's Eat Right India initiative are listed below:

1) Adequate quantity of well-balanced nutritious foods should be eaten to prevent obesity and undernutrition:

- Adolescent girls should add calcium and iron rich-food to their diet to increase bone density to delay onset of osteoporosis and to prevent anemia.
- Protein rich food should be eaten to support growth spurts.
- Include fruits and vegetables in the diet to meet vitamin, mineral and fiber requirements.
- No meal should be missed, as adolescence is a period of rapid growth and development.
- Junk food should be avoided.
- Food should be colorful and attractive.
- Avoid empty calorie foods such as carbonated beverages.

2) Physical activity should be encouraged among children and adolescents:

- Children and youth aged 5–17 should accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity daily.

- Amounts of physical activity greater than 60 minutes provide additional health benefits.
- Most of the daily physical activity should be aerobic. Vigorous-intensity activities should be incorporated, including those that strengthen muscle and bone, at least three times per week

Nutrition During the First 1,000 Days

According to National and Family Health Survey-4 (NFHS-4), 26.8 percent of the girls in India are still getting married below the legal age which is 18 and 21 years for girls and boys respectively, 8 percent of girls 15-19 years were already mothers or pregnant at the time of the survey. It is important to teach girls about the importance of good nutrition for themselves during pregnancy and lactation, and for their baby during the first 1,000 days. The first 1,000 days between pregnancy and a child's 2nd birthday is the most critical time to have a positive impact on a child's health. The health and well-being of a pregnant and lactating woman is directly connected to the growth and health of her infant. The right nutrition for the mother and for the child during this time can have a profound impact on the child's growth and development and reduce disease risk, as well as protect the mother's health. Under-nutrition during pregnancy, affecting fetal growth, is a major determinant of stunting and can lead to consequences such as obesity and nutrition-related NCDs in adulthood. The WHO recommends exclusive breastfeeding for the first six months of a baby's life, followed by additional semi-solid foods to complement breast milk. Optimal feeding starts by giving colostrum (thick yellowish first milk) to the baby, which contains essential antibodies for the newborn. Breastfeeding should preferably be continued up to at least two years in order to protect the child from various forms of malnutrition. Early initiation of breastfeeding is very much essential for survival, growth and nutrition of the newborn. In addition, it also aids good cognitive development and learning ability (WHO 2020).

Sample diet plan for an Indian adolescent

Meal	Menu
Early morning	Milk/tea/buttermilk 30 gms peanuts/almonds/apricot
Breakfast	2 boiled eggs with chapatti, stuffed parantha, Indian thali
Midmorning	Bhunna channa with murmura, peanut, and jaggary (gud)
Lunch	Dal, subzi, green leafy vegetables, curd, salad, chapatti, rice
Midafternoon	Milk/tea/buttermilk and bhunna chana
Dinner	Dal, subzi, green leafy vegetables, curd, salad, chapatti, rice

Practice Questions

1. What are nutrients? Can you briefly write about various types of nutrients and their locally available sources?
2. What are empty calories? Discuss with examples.
3. What do you understand about the first 1,000 days?
4. What is colostrum? When should it be given to the child?
5. What is the recommended physical activity for young children?

Key Takeaways

- Teachers understand the importance of raising awareness about good nutrition among students.
- Teachers understand the impact of good nutrition in the first 1,000 days on the rest of life.
- Teachers understand the impact of nutrition deficiency on Indian adolescents and the role schools can play to tackle this problem.

CHAPTER 3: PERSONAL & PUBLIC HYGIENE

Learning Objectives

- To educate on living healthy in a clean environment.
- To raise awareness of the importance of maintaining personal hygiene and sanitation.

Session Includes

- Sanitation
- Personal hygiene
- Oral hygiene
- Respiratory hygiene
- Water and food hygiene

Key Resources

- Key Messages and Actions for COVID-19 Prevention and Control in Schools (Bender 2020)
- Water, Sanitation and Hygiene (WASH) in Schools (Mooijman 2012)

Sanitation

Toilets and latrines

- Proper sanitation facilities such as toilets and latrines promote health because they allow people to dispose of their waste appropriately. Many people do not have access to suitable sanitation facilities.
- Without proper sanitation facilities, waste from infected individuals can contaminate a community's land and water supply, increasing the risk of infection for other individuals. Proper waste disposal can slow the infection cycle of many disease-causing agents.
- Improper sanitation contributes to the spread of many infectious diseases like cholera, typhoid, jaundice, and diarrhea, and can cause widespread illness and death.



Source:
<https://swachhindia.ndtv.com/independence-day-free-india-unsafe-sanitation-wash-practices-school-open-defecation-free-odf-23869>

- Toilets should be kept clean. Adequate water should be available for flushing and cleaning the toilet, whichever type it may be.
- Proper hand washing after usage of toilet is important.

Personal Hygiene

Personal hygiene means keeping the body and all the external organs clean, starting from head to toe.

Hands and nails

- Proper hygiene of hands and nails is important to prevent infections. Dirty hands and nails can pass germs to food we eat and cause illness.
- Nails should be cut short regularly and cleaned.

Hand washing is VERY IMPORTANT

The method for proper hand washing is:

- Adequate running water from tap is best. If water is stored, the quantity **MUST** be adequate.
- Use soap.
- The hands should be rubbed thoroughly. It is important to clean the nails and space between the fingers. Soap should be washed off well and the hands dried with a clean cloth.

When do we **HAVE** to wash hands?

- After using the toilet.
- When handling foods, and before and after eating.
- After caring for sick persons and small children.
- When hands are dirty.
- When arriving home from work or from outside.

Skin

Skin protects our body. Keeping the skin clean keeps a person healthy. Bathe at least once a day. Pay special attention to cleaning in the folds of the skin: under the breasts, the armpits, the groin, between the toes. Adolescents should wash their faces more



frequently to keep the skin clean, and free of oil to prevent pimples. Men and women must clean their genitals properly while taking bath. One must wear clean (preferably cotton) undergarments, after taking bath.

Hair

Hair should be washed with soap or any other local cleaning agent once a week or more often, as needed. Children should comb their hair and be checked for head lice periodically.

Eyes

- Splash clean water on eyes while washing the face.
- It is important to protect the eyes from strong sunlight, wind, and dust.
- Restrict screen time (i.e. mobile, TV, and other gadgets).

Ears

- Do not use unhygienic and/or pointed items to remove wax from ears.
- Exposure to loud noise including music can damage hearing.
- Minimize use of headphones and keep volume low when using.
- Minimize use of mobile.

Mouth and teeth

Cleaning your mouth and teeth is important for health. Beyond giving you bad breath, poor dental hygiene can result in tooth decay. Teeth must be kept clean and gums massaged; this is important as the gums support the teeth. We need clean teeth and gums for biting, chewing, and smiling.

Cleaning teeth

- Once a child is 5-7 years old, he/she should be taught to brush the teeth on their own using a soft toothbrush with toothpaste or tooth powder (or traditional accepted method) after every meal and at night. The child can be taught to massage the gums with the fingers. Toothbrushes should not be shared.



- Children should have regular dental check-ups to prevent and detect early tooth decay.
- Children should not be allowed to eat too many sweets or starchy foods, which stick in the teeth and cause tooth decay.
- Children and adults should NOT initiate the use of any tobacco product, smoking or smokeless.

Menstrual hygiene

Menstruation is the monthly bleeding from the vagina, which starts when a girl is around 11 years of age, although this varies by individual. Bleeding can last 3–6 days and the amount varies from one girl to another.

During menstruation, a girl/woman must:

- Keep herself and her genitals clean.
- Use clean cotton cloth pieces or cotton pads to absorb the blood.
- Change cloth/pads, depending upon the amount of bleeding.
- Dispose used cloth/pad by wrapping it in paper and discarding in a dustbin. Used pads should not be disposed in the toilet or thrown simply anywhere.
- Wash hands with soap and water after changing pads.

Keep feet healthy

- Feet should be kept clean and washed daily.
- Wear shoes that fit comfortably when going out.

Sleeping

- At least 8 hours of sleep a day is necessary for adequate rest in adults and proper growth in children.
- Avoid mosquito and other insect bites while sleeping by screening bedrooms. If the room is not screened, sleep under a mosquito net.

Coughing and spitting

Often when sputum is formed and a person coughs, it comes into the mouth and has to be spat out. Sputum contains germs, which can spread and cause disease to those who are exposed to it. Sputum should be spat into a washbasin and flushed or into a disposable cup or napkin and disposed in the dustbin. Outside the house, cough into a tissue paper and dispose in a dustbin.

Respiratory Hygiene

Respiratory hygiene and cough etiquette are terms used to describe infection prevention measures to decrease the transmission of respiratory illness (e.g., influenza and cold viruses). A respiratory infection is spread when a person who is infected with a virus coughs or sneezes. The droplets released from an ill person's cough or sneeze can travel several feet, reaching the nose or mouth of others and causing illness. Viruses can spread easily from person to person through direct contact via touching or shaking hands. Droplets can also live for a short time on a variety of objects such as bed rails, doorknobs, wheelchairs, or patient care equipment, where they can be touched by another person. Therefore, respiratory hygiene is a very important component of protecting yourself and others from illness.

It is recommended that the following control measures be to contain respiratory secretions from any individuals with signs and symptoms of a respiratory infection:

- Cover mouth and nose with a tissue when coughing or sneezing.
- Discard the tissue in the nearest trash container immediately after use.
- Perform hand hygiene after contact with respiratory secretions and/or contaminated objects/materials.

In addition:

- Place a mask on a coughing patient (if tolerated).
- Separate persons with respiratory infections at least three feet apart, if possible, in common waiting areas.

To help stop the spread of infections transmitted by coughing or sneezing (e.g., influenza, respiratory syncytial virus, whooping cough), the following measures should be taken:

- Avoid close contact with people who are sick.
- Stay home when you are sick.
- Cover your mouth and nose with a tissue when you cough or sneeze.
- Avoid using your bare hand to cover your mouth and nose when you sneeze. If a tissue is not readily available, cough or sneeze into your upper sleeve or elbow.
- Wash your hands often with soap and warm water for 20 seconds. If soap and water are not available, use an alcohol-based hand rub.
- Avoiding touching your eyes, nose, and mouth.
- Practice regular inhale - exhale exercises, which improve the respiratory system.

Check children's nostrils regularly at school and at home to make sure their nose is clean and discourage habit of putting finger in nose.

Water Hygiene

Unclean water and food have germs, which enter the body and lead to a number of illnesses and diseases including diarrhea, typhoid fever, cholera, hepatitis A (jaundice), food poisoning or intestinal worms. It is important to pay attention to water and food hygiene to prevent sickness.

Water that is used for drinking and cooking purposes must be safe from both germs and chemicals (e.g., arsenic and fluoride). This means it must be:

- Taken from safe sources.
- Collected in a clean manner.
- Stored in a clean vessel.
- Taken from the vessel in a hygienic manner (with clean hands).
- Consumed in a hygienic way.
- If the safety of water is in doubt, treat it at home by filtering, boiling, or with chlorination.

Water storage

- Water used for drinking and cooking should be stored in a clean, large-mouthed vessel. The vessel should be covered properly. When taking out water, a ladle with a long handle should be used and kept on the cover of the vessel for easy and ready access.
- It is important to always drink water from a clean glass. If hands are used for drinking, wash them with soap and water before drinking. It is very important to wash children's hands.



Food Hygiene

Important elements of food hygiene include cleanliness in preparing, cooking, storing, serving, and eating food.

Food preparation

- The kitchen should be ventilated and kept clean. The area should be free of flies and other insects and rats.
- When cooking in an open veranda or outside, cook in a clean area, away from dirt and animals. Food should always be covered and protected from flies and dust.

- Cook food in clean vessels.
- Clean cooking surface before and after use.
- Fruits and vegetables must be properly washed, preferably in running water, before eating, peeling, or cutting. Fruit should be freshly cut and eaten.

Storing foods

- Storing food in the wrong place or at the wrong temperature can lead to the growth of germs.
- Cooked foods should be kept covered until they are served to protect them from dust, flies, and contaminants.
- Meat and meat products should be cooked appropriately and consumed fresh.

If a refrigerator is available:

- Fresh and frozen food must be stored in the refrigerator or freezer as soon as possible after purchase. This is especially important if the weather is hot.
- Tins of food that have been opened should not be kept in the fridge. Food items must be taken out of the tin and transferred to a suitable airtight container.
- Allow leftover cooked foods to cool to room temperature before putting them in the fridge.
- Any processed food that has passed its expiry time/date MUST NOT be used.

Practice Questions

1. How can we protect ourselves from respiratory diseases?
2. How many hours of sleep do we need to keep ourselves healthy?
3. How to store and purify water in absence of a water purifier?

Key Takeaways

- Teachers have increased knowledge on proper hand washing and are able to demonstrate for children.
- Teachers are able to communicate the various sources of water and its importance for hygiene.
- Teachers are able to suggest hygienic conditions of school canteen/school kitchen/midday meal.
- Students understand and practice hygienic methods at home.
- Students' personal hygiene habits are improved.

CHAPTER 4: HARMS OF TOBACCO, ALCOHOL, AND DRUGS

Learning Objectives

- To raise awareness about the types of tobacco products used in India.
- To present the health hazards of tobacco, alcohol, and drug abuse.
- To present the Indian Tobacco Control Act.
- To raise awareness about how to make schools tobacco-free spaces.

Session Includes

- Types of tobacco products
- Cigarettes and Other Tobacco Products Prevention and Prohibition Act (COTPA)
- Implementation of tobacco-free schools
- Health hazards of tobacco, alcohol, and drugs

Key Resources

- Cigarettes and Other Tobacco Products Prevention and Prohibition Act (COTPA) (Ministry of Law and Justice 2003)
- Effects of tobacco on human health (National Health Portal 2015)

Tobacco and Types of Tobacco Products

Tobacco in any form is deadly. Smoked tobacco products contain more than 4,000 chemicals, including at least 250 known to be toxic or to cause cancer (Centre for Disease Control and Prevention 2019). Tobacco use affects almost all organs of the human body.

Health effects include heart attack, stroke, and other cardiovascular diseases, lung cancer, oral cancer and other oral diseases as well as throat cancer.

Every puff of a cigarette delivers **toxins and carcinogens to the body**. Smokers are at a significantly higher risk of developing acute myeloid leukemia; cancer of the nasal and paranasal sinus cavities; colorectal, kidney, liver, pancreas, stomach, ovary, and cancer of the lower urinary tract (including the bladder, ureter, and renal pelvis) (Centre for Disease Control and Prevention 2019).

Types of tobacco products used in India:

- **Smoking forms:** cigarettes, bidis, cigars, cheroots, chuttas, dhumtis, pipes, chillum, hookah.

- **Smokeless forms:** gutkha, zarda, paan masala, khaini, tobacco water, meetha mawa.
- **Nasal/inhaled forms:** snuff, applying to teeth and gums, gul gudhaku, 'dant manjan' creamy snuff, mishri, etc.

Second-hand smoke

The smoke from other people's cigarettes, bidi, etc. is called second-hand smoke and is as harmful for the person who is not smoking as it is for the person who is. Second-hand smoke can cause lung cancer. It is important to excuse yourself from a place when people are smoking.

The Cigarettes and Other Tobacco Products (Prohibition of Advertisements and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 (COTPA)

COTPA includes the following guidance:

Section 4: Prohibition of Smoking at Public Places

No person shall smoke in any public place. As per Section 4, public place means any place to which the public has access, whether as of right or not, and includes auditoriums, hospital buildings, railway waiting rooms, amusement centers, restaurants (including refreshment rooms, banquet halls, discotheques, canteens, coffee houses, pubs, bars, airport lounges, etc.), public offices, courts, buildings, **educational institutions**, workplaces, shopping malls, cinema halls, libraries, public conveyances, and open spaces visited by the public like open auditoriums, stadiums, railway stations, and bus stops.

The law mandates that owners, managers, or those in charge of a public place display a board of 30 cm X 60 cm containing a warning (e.g., **"No Smoking Area – Smoking Here is an Offense"**).



Source: <https://tobaccofree.org.in/node/3871>

Hotels that have at least 30 rooms, restaurants with seating capacity for 30 persons or more, and airports are permitted to provide a separate smoking area. The penalty for violating this section of the law is a fine of up to rupees 200. The offence is compoundable and shall be tried summarily.

Section 5: Ban on direct and indirect advertising of tobacco products

- No person shall advertise or take part in any advertisement that directly or indirectly suggests or promotes the use of tobacco products.
- All types of advertising are prohibited (surrogate brand stretching, attractive schemes, sponsorship, and free samples).
- Display of tobacco products in films and television is restricted.

The law mandates the following:

- Points of sale advertisement cannot exceed two boards (60 cm x 45 cm).
- Board should contain health warnings "Tobacco Kills" or "Tobacco Causes Cancer."
- 33 percent of the board should have health message on the top edge.
- Board cannot display brand shot or name, promotional message, or picture.
- Boards should not be illuminated or backlit.
- Packs cannot use misleading terms.

Section 6a: Protect the vulnerable: ban on sale to and by minors (below the age of 18)

- Sale or handling of tobacco products by minors.
- Visible display of tobacco products at point of sale.
- Sale of tobacco products through vending machine.
- Every tobacco vendor should display the board at a conspicuous place in the applicable Indian language.

Section 6b: Sale of tobacco is prohibited within 100 yards (300 feet) of educational institutions

The owner or the person in charge of an educational institution should display, in a prominent place, a board stating that sale of cigarettes and other tobacco products within a radius of 100 yards is strictly prohibited and punishable with a fine up to rupees 200. The offence is compoundable and shall be tried summarily.

Section 7: Specified health warnings on tobacco products:

- A health warning on tobacco packages is very significant, but a 'pictorial' health warning on packages is more significant.

- Pictorial warnings will cover 85 percent of the principal display area on tobacco product packages.
- Pictorial warnings will be rotated every 12 months.
- Use of misleading words [such as “light,” “mild,” “ultra-light”] and descriptors are prohibited.



Source: <https://www.indiatoday.in/education-today/gk-current-affairs/story/tobacco-law-304087-2016-01-16>



Source: <https://tobaccofree.org.in/node/3871>

Alcohol and Drug Abuse

Alcohol is a harmful substance. It is made by fermenting yeast in a sugar-based solution. Popular alcohol types include:

- Beer
- Whisky
- Rum
- Wine

Effects of Alcohol on the Body

In small quantities, alcohol stimulates the heart, digestion, and the nervous system. It may become a habit and may cause depression. A person is said to be dependent on alcohol or drugs when their use harms his/her physical, mental, or social health. Typically, it becomes difficult for people to stop using these substances because they may experience withdrawal syndrome, which includes physical discomfort and an extreme desire to consume the substance. Dependence causes great damage to sufferers, their families, and ultimately to the community. Alcohol not only harms the drinker through its physical effects but is also associated with high suicide rates, marriage problems and domestic violence, road traffic injury and death, and increased poverty.

Different types of drugs may be abused. Other than alcohol, the most common misused drugs are cannabis, opium and related drugs such as heroin, cocaine, and other stimulants such as speed, and sedative medicines.

Practice Questions

1. What are the various types of tobacco products used in India?
2. What does COTPA stand for? When did it come into being?
3. Sale of tobacco is prohibited within how many yards of educational institutions?
4. What is second-hand smoke? Is it harmful for our health?
5. Discuss the health impacts of alcohol and drug abuse.

Key Takeaways

- Teachers able to describe the ill effects of tobacco use.
- Teachers' knowledge about the provisions of COTPA is increased.
- Teachers understand and can explain the ill effects of second-hand smoke.

CHAPTER 5: PHYSICAL ACTIVITY

Learning Objectives

- To define physical activity.
- To raise awareness of the importance of physical activity.

Session Includes

- Physical activity

Key Resources

- Health and physical education textbook (NCERT 2016)

Physical Activity

What is physical activity?

Physical activity simply means movement of the body that uses energy. Walking, gardening, climbing the stairs, playing games, or dancing are all good examples of being active. For health benefits, physical activity should be **moderate** or **vigorous** and add up to at least 30 minutes a day.

Moderate physical activities	Vigorous physical activities
<ul style="list-style-type: none">• Walking briskly• Hiking• Gardening/yard work• Dancing• Bicycling• Weight training (general light workout)	<ul style="list-style-type: none">• Running/jogging• Bicycling• Swimming (freestyle laps)• Aerobics• Heavy yard work• Weight lifting (vigorous effort)• Indoor/outdoor games (sports)

Why is physical activity important?

Being physically active is a key element in living a longer, healthier, happier life. It can help relieve stress and can provide an overall feeling of well-being. Physical activity can also help individuals achieve and maintain a healthy weight and lower risk for chronic diseases.

Benefits of physical activity:

- Improves self-esteem and feelings of well-being
- Increase fitness level
- Build and maintain bones, muscles, and joints
- Enhances flexibility and improves posture
- Helps manage weight
- Lowers risk of heart disease, colon cancer, and type 2 diabetes
- Helps control blood pressure
- Reduces feelings of depression and anxiety

Physical activity and nutrition work together for better health. Being active increases the number of calories burned. As people age, their metabolism slows down, so maintaining energy balance requires moving more and eating less.

The following types of physical activity are especially beneficial:

Aerobic activities

Speeds heart rate and breathing, and improves heart and lung fitness. Examples are brisk walking, jogging, swimming, and bike riding.

Resistance, strength-building, and weight-bearing activities

Helps build and maintain bones and muscles by working them against gravity. Examples are carrying a child, lifting weights, and walking.

Balance and stretching activities

Enhances physical stability and flexibility, which reduces risk of injuries. Examples are gentle stretching, dancing, yoga, martial arts, and kung-fu.

How much physical activity is needed?

- At a minimum, individuals should do **moderate** intensity activity for 30 minutes most days, or preferably every day. This is in addition to usual daily activities. Increasing the intensity or the amount of time of activity has additional health benefits and can help control body weight.
- About 30 minutes a day of moderate physical activity may be needed to prevent weight gain. For those who have lost weight, 60– minutes a day may be needed to maintain the weight loss. At the same time, calorie needs should not be exceeded.
- Children and teenagers should be physically active for at least 60 minutes every day, or most days.
- While 30 minutes a day of moderate intensity physical activity provides health benefits, being active for longer or doing more vigorous activities can provide even

greater health benefits. They also use up more calories per hour. No matter what activity you choose, you can do it all at once, or divide it into two or three parts during the day. Even 10-minute bouts of activity count toward your total.

- Most adults do not need to see their health care provider before starting to exercise at a moderate level. However, men over the age of 40 and women over the age of 50 who want to start vigorous physical activity should consult a health care provider.

Individuals who have one of the conditions below should also consult a health care provider for help in designing a safe program of physical activity:

- A chronic health problem such as heart disease, high blood pressure, diabetes, osteoporosis, asthma, or obesity.
- High-risk for heart disease, such as a family history of heart disease or stroke.

More ways to increase physical activity

- Join a walking group.
- Get the whole family involved walking.
- Clean the house.
- Walk, jog, or cycle more, and drive less.
- Do stretching exercises.
- Plant and care for a vegetable or flower garden.
- Play with kids.
- Swim laps or do water aerobics.
- Take a class in martial arts, dance, or yoga.
- Play games like: Kho-Kho, Kabaddi, etc.
- Play basketball, softball, football, or cricket.
- Take a nature walk/hike.

Practice Questions

1. What are the various types of physical exercises?
2. What can you do to increase physical activity?

Key Takeaways

- Teachers better understand the importance of and encourage physical activity.
- Students are encouraged to play sports/be physically active.

CHAPTER 6: ENVIRONMENTAL EDUCATION

Learning Objectives

- To educate on the environment and its components.
- To educate on various types of waste and why waste management is important.
- To raise awareness of measures taken for safe storage and disposal of waste at home, schools, and communities.
- To promote importance of recycling of plastic waste.

Session Includes

- Environmental health
- Definition of environmental education
- Definitions of waste, waste management, waste segregation, and transportation

Key Resource

- Project Book in Environmental Education (NCERT 2009)

Environmental Health

- The environment includes inside the house, the nearby surroundings, and the community in which people live. Household and community environments have tremendous effects on human health.
- Garbage thrown in open areas and wastewater and standing rainwater create an unhealthy environment. Standing water creates breeding zones for flies and mosquitoes, which can cause serious illnesses and diseases such as malaria, dengue fever, and diarrhea.

To prevent the breeding of mosquitoes inside or outside, the following steps should be taken:

- All empty pots, utensils, tins, tires, and anything in which water can collect should be removed.
- Empty flowerpots should be kept upside down.
- Water coolers, tanks, and should be covered.

External environment

- Keeping the area around the house and the neighborhood clean is the responsibility of each member of the community. The best way to achieve this is by working together with the neighbors and the community.

- People should not throw rubbish in any public area and must stop others from doing so.
- Keeping roads clean is the responsibility of the municipal authorities, who must ensure such cleaning on a daily basis.
- Drains along the roads are for removing surplus water. Rubbish must not be thrown into them. The drains should be cleaned regularly, especially before the rains. In case of water collection, the concerned authority must be contacted.
- Area around wells, water taps, and hand pumps should be cemented with proper drainage to prevent water collection.
- Each family should try to grow a tree or some plants, depending on the space available. Children can be taught to look after plants and tend to them.

Environmental Education

What is environmental education?

Environmental education is a process that allows people to explore issues, engage in problem solving, and take action to improve the environment. As a result, they develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions to protect or improve it.

Components of environmental education

- **Awareness and sensitivity** to the environment and environmental challenges.
- **Knowledge and understanding** of the environment and environmental challenges.
- **Concern** for the environment and motivation to improve or maintain it.
- **Skills** to identify and help resolve environmental challenges.
- **Participation** in activities that lead to the resolution of environmental challenges.

Waste

What is waste?

- Waste is a term for unwanted materials. This includes trash, garbage, refuse, or rubbish consisting of everyday items that are discarded by the public. It also includes industrial wastes or sludge from a wastewater treatment/water supply treatment plant.
- **“Dry waste”** means waste other than biodegradable waste and inert street sweepings. It includes recyclable and non-recyclable waste, combustible waste, sanitary napkin, diapers, etc.
- Wet waste means household waste, food and market waste, gardening, agriculture, dairy, and institutional waste.

Why is waste management important?

- Inappropriately managed waste can attract rodents and insects, which can harbor gastrointestinal parasites, worms, and organisms that can cause harmful conditions for human beings. Exposure to hazardous wastes, particularly when they are burned, can cause various other diseases including cancers.
- Toxic waste materials can contaminate surface water, groundwater, soil, and air, causing more problems for human and other species and ecosystems.
- The costs of managing waste are high, and are often paid for by the local governments. Money can often be saved with more efficiently designed collection routes, modifying vehicles, and conducting public awareness campaigns and education programs.

How should waste be stored?

Storage of waste at source is the first essential step of solid waste management. Every household, shop, and establishment generates solid waste on a day-to-day basis. The waste should normally be stored at the source of waste generation until collected for disposal.

In India, these practices are not the norm and, in the absence of storage systems at source, people treat streets as receptacles of waste. Urban local bodies must therefore take concerted measures to ensure that citizens appropriately store waste at the source of waste generation.

Segregation

Segregation means sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste; non-biodegradable wastes including recyclable waste; non-recyclable combustible waste, sanitary waste, and non-recyclable inert waste; domestic hazardous wastes; and construction and demolition wastes. Recyclable and other non-biodegradable wastes should be kept separately from each other.

It is important to follow the principles of reduce, reuse, and recycle in managing solid wastes. We must try to segregate waste into different categories:

- Biodegradable (kitchen and garden): Includes food wastes of all kinds (cooked and uncooked), eggshells, bones, fruit and vegetable wastes, and flowers, leaves, and houseplants waste.
- Recyclable: Includes bottles, plastic containers, glasses, plastics bags, etc.
- Hazardous: Includes mobile phones, computers, cleaning fluids, batteries, printers, light bulbs, medicines, etc.

How should waste be disposed of?

Urban local bodies should arrange for the collection of domestic, trade, and institutional food/biodegradable waste from the doorstep or the community bin on a daily basis.



Source: <https://www.smartcityindore.org/>

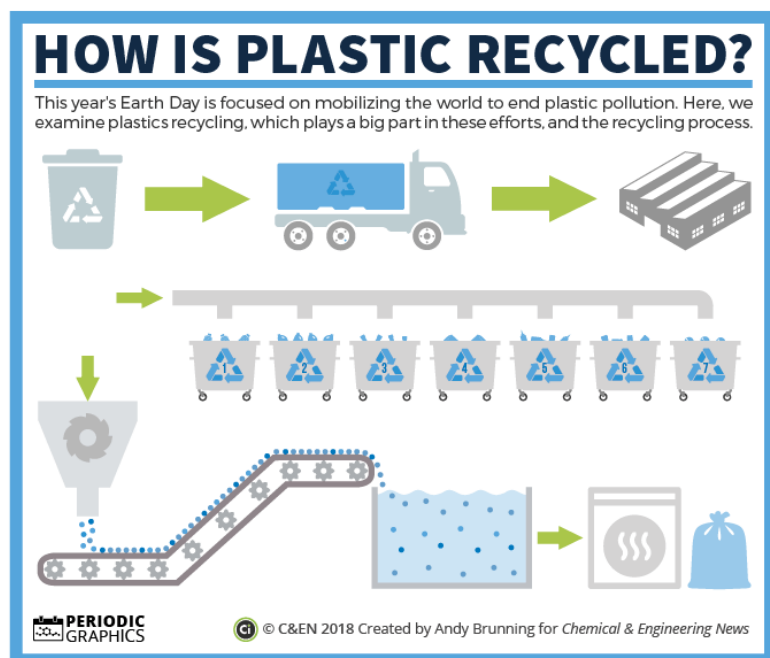
Recycling

Recycling is a process to change waste materials into new products to prevent waste of potentially useful materials; reduce the consumption of raw materials, energy use, and pollution; and lower greenhouse gas emissions.

Recycling is a key component of modern waste reduction and is the third component of the "reduce, reuse, and recycle" waste hierarchy. Disposal of solid waste through vermicomposting is discussed below.

What is plastic recycling?

Plastic recycling is the process of recovering plastic and reprocessing the material into useful products, sometimes completely different in form from their original state. For instance, melting soft drink bottles and then casting them as plastic chairs and tables.



Plastics are also recycled or reprocessed during the manufacturing of plastic goods such as polyethylene film and bags. A percentage of the recycled pellets are then re-introduced into the main production operation.

Source: <https://www.compoundchem.com/2018/04/22/plastic-recycling/>

Vermi-composting

Vermi-composting involves the stabilization of organic solid waste through earthworm consumption that converts the material into worm castings. Vermi-composting is the result of combined activity of microorganisms and earthworms. The vermin-compost is relatively more stabilized and harmonizes with soil system without any ill effects. This technology has been used for agricultural waste but its adoption to municipal solid waste is a recent undertaking.

How can the community be involved in waste management?

The community should be at the center of all activities. Public awareness campaigns are needed to promote effective community participation, transparent administration, introduction of citizen charters, and accountability at all levels.

People's participation is essential to:

- Reduce, reuse, and recycle waste.
- Cease throwing waste/litter in the street drains, open spaces, water bodies, etc.
- Store organic/bio-degradable and recyclable waste separately at source.
- Identify/establish a primary collection of waste.
- Organize/identify community storage/collection of waste in flats, multi-storied buildings, societies, commercial complexes, etc.
- Organize/identify waste processing/disposal at the community level (optional).
- Arrange payment for the services provided.

How to reduce waste at school?

The best way to solve our waste problem is to first reduce the amount of waste we produce. Schools should focus on the waste stream(s) where most waste is produced and work to reduce output.

How to reuse waste at school?

Keeping in mind that waste is not officially waste until it is disposed of, try to find clever and effective ways to reuse waste. This will save the school money, help to cut down the volumes of waste being sent to landfills, and possibly create a new revenue stream for the school. Allocate each class a specific waste generation area and ask students to come up with clever ways to reuse that waste. Ask each class to produce a project. Put the projects on display and implement those that are most viable.

More ways to help schools reuse/recycle waste

- Before disposing of something, think about other ways to use it. For example, discarded paper could be used to make paper bags; discarded cans could be used in arts and crafts classes; and glass jars could hold crayons or pencils in the classroom.
- Look outside the school for people who may want to reuse the school's waste. For example, artists may use recycled waste in their work. Schools may even be able to sell waste to external parties, thereby making some money.
- Establish designated areas for composting organic waste such as leftover food. There are different ways to make compost, so select one that suits specific situation. Use compost to set up a small-scale vegetable garden. Students will gain an appreciation of growing and eating healthy and local foods, and/or schools could sell vegetables to members of the community to generate additional income.

Practice Questions

1. What are the main components of environmental education?
2. What is vermi-composting and how can it help our environment?
3. What is recyclable and non-recyclable waste? Give examples.
4. What is waste management and how should waste be segregated?

Key Takeaways

- Teachers and students' knowledge on waste, waste products, segregation, and management increased.
- Teachers should encourage recycling of solid waste and making zero-waste schools. Teachers should promote/oversee organization of seminars and group discussions on waste material management.

CHAPTER 7: LIFE SKILLS & BEHAVIORS

Learning Objectives

- Educate about life skills and how to use them in daily life.
- Increase knowledge about activities that may lead to several risky or unsafe behaviors.
- Improve knowledge of first aid.
- Raise awareness about good touch and bad touch.

Session Includes

- Definitions of accidents at school, home, and road
- Prevention of accidents and injuries
- Road safety
- First aid
- Good touch & bad touch

Key Resources

- Life skills education and CCE resource book by CBSE (Central Board of Secondary Education, n.d.)
- Training material on first aid for secondary class students by first aid for schools (First Aid for life n.d.)
- Book on road safety and signage (Ministry of Road transport and highways 2015)

What Are Life Skills?

- The WHO defines life skills as "the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life." (International Bureau of Education 2016).
- UNICEF defines life skills as "a behavior change or behavior development approach designed to address a balance of three areas: knowledge, attitude and skills." (International Bureau of Education 2016).

What Are Accidents?

- An accident is an unplanned incident that can be hazardous to health and can lead to loss of life. It may be on the road, bus, bike, or at home, but can happen anywhere.
- We should adopt and adhere to safety rules to help prevent accidents.

Types of accidents

- Commuter (road)
- Occupational (industrial, building)
- Home
- Recreational (sports, outdoor)
- School

Common factors in accidents

- Unsafe behavior.
- Lack of knowledge/skill.
- Unsafe attitudes like carelessness, thoughtlessness, indifference, haste/fatigue, risk-taking.
- Physical limitations.
- Unsafe environment such as poorly maintained equipment/machinery, roads, building site, or factory; poor compliance with rules, and poor monitoring of regulations.

Importance of safety

Safety implies freedom from danger. Knowledge of safety rules does not help unless a person develops safe habits.

Prevention of Accidents and Injuries

Accidents at home

Many types of accidents can occur at home, particularly those involving children and the elderly. Common home accidents include:

Fire and burns

- Children can burn themselves when they play with a matchbox or a lighted candle or if a hot surface or utensil is within reach. All such articles should be kept out of reach of children.
- Everyone should be careful while cooking or dealing with inflammable liquids.

Poisoning

Common household poisons

- Kerosene oil
- Rat poison

- Insecticides, pesticides
- Medicines
- Cleaning agents (including acid)

Road accidents

Common causes of road injuries

- Fast-moving vehicles
- People running across or on the edge of the road
- Stray animals on the road
- Poor road condition
- Insufficient lighting; traffic signals not working properly
- Traffic rules violations
- Drunk driving
- Using mobile phone while driving.

Road safety rules

- Vehicle should be driven only by people of legal age.
- Traffic rules should be strictly followed.
- Correct signals should be given when turning or stopping at the correct time.
- Wear a helmet when biking and motorcycling.
- Wear seatbelts.
- Never drive after drinking alcohol.
- Do not use mobile phone while driving.
- Only crossroad when it is clear of traffic. Use crosswalks where available.
- Adults should hold the hands of children when crossing a road and teach children to cross the road safely.
- Walk on the footpath. Where none is available, walk on the opposite side of oncoming traffic.

Suffocation

- Plastic bags are the leading cause for suffocation in children. They should be kept in a safe place out of reach of children.
- Put home and courtyard fires out before going to sleep to avoid smoke inhalation.

Drowning

- Toddlers can drown in as little as a bucket of water, so they should not be left alone near a bucket of water or in the bathroom.

- When swimming, children should be supervised by an adult who knows how to swim, how to rescue a drowning person, and who will stay close to the swimming area. Do not swim in rivers or the sea during the rainy season.

Falling/slipping from height/stairs

- Falling from the roof/terrace occurs frequently during kite-flying season if the boundary wall is not high enough. Ensure that the roof has a sufficiently high boundary wall.
- Young children and elderly people can slip and fall down stairs. Stairs should have a railing to hold on to and children and the elderly should be helped when they walk up and down stairs.

Injuries from sharp objects

- Knives and sharp objects can cause serious cuts and injuries. These objects must be kept in safe places out of children's reach. Adults should use them carefully.
- Be cautious when using blades to sharpen pencils in classrooms.

First Aid

No matter how careful we are, mishaps do happen; that is why they are called 'accidents.' It is important that everyone know what to do when a person suddenly becomes sick or hurt.

Immediate help given to an injured or sick person is called first aid. First aid can:

- Prevent the condition of the injured or sick person from getting worse.
- Help to keep the person comfortable until proper medical help is given.
- Save a life.

It is important to know when to give first aid and when not to. For example, one should give first aid in case of a small injury, such as a burn, cut, scratch, or bruise. However, if the person's condition looks serious, there is lot of bleeding or pain, or the injury seems to be inside the body, it is best to get medical help immediately.

First aid items include adhesive tape, antiseptic wound cleanser or alkaline soap, bandages, scissors, safety pins, emollient (lubricant) eye drops, insect repellent, insect bite treatment, antihistamine treatment, nasal decongestant, oral rehydration salts, simple analgesic (e.g., paracetamol), sterile dressing, clinical thermometer, sunscreen, earplugs, tweezers, and adhesive strips to close small wounds.

What to do in case of a cut or scratch

- Wash hands thoroughly before giving first aid
- If the cut or scratch is small, wash with soap and plenty of water using cotton or clean cloth. Dry the wound and apply antiseptic cream.
- If the wound is deep and the bleeding heavy, wash it with soap and water then try to stop the bleeding by pressing/putting pressure on the wound with a clean pad of cotton or cloth until it stops. If the bleeding does not stop, use a "tourniquet," which is a wide strip of cloth wrapped tightly around the cut two or three times and knotted. Keep the tourniquet in place until the injured person reaches the doctor.

What to do in case of sprains

Sometimes joints such as the ankle or wrist can get twisted. The joint swells and may be quite painful. Children may sprain themselves while playing. In the event of a sprain:

- Ice should be applied immediately, if it is available, to reduce swelling.
- Avoid moving the joint until medical help is reached.
- A tight bandage should be wrapped around the sprained area to support the joint and prevent unnecessary movement.
- Do not rub or massage a sprain. If needed, administer a painkiller such as paracetamol.

What to do in case of a nosebleed

Bleeding from the nose is quite common in children and even in adults during summer. In the event of a nosebleed:

- Apply 1–2 ice cubes (wrapped in a cloth) to the nose for some time.
- Gently place a piece of cotton inside the nostril after smearing a little Vaseline around and just inside the nostrils.
- Avoid bending forward or down. Tip the head and neck back and rest on a pillow or the back of a chair for 10–15 minutes.
- Pinch the nose between the thumb and forefinger for 7–10 minutes while the person breathes through the mouth. This may help control or stop the blood flow.

What to do in case of a poisonous snake or cobra bite

- Do not move the person because poison can spread through the blood.
- The body part that was bitten should be kept in a lower position than the heart.
- Tie a tight cloth or bandage just above the bite to slow the flow of blood to heart. This can save the person's life.
- Take the person to the hospital immediately for an anti-venom injection.

Make Children Aware About Good Touch and Bad Touch

There is increasing public awareness of child abuse and molestation. It is important to teach young children about good touch and bad touch to help prevent abuse. Most of the time, abusers target children who are younger than 6 years of age, many of whom do not yet understand the difference between right and wrong.

Start sensitizing children from a young age

- Start talking to children about good and bad touch as early as possible so that they are equipped to understand this sensitive issue.
- Tell them that the body parts we usually keep covered are private and no one has permission to touch them.
- Help them to understand the difference between good and bad touch.

How to explain good touch

Good touch feels pleasant and is a way to show care, love, and help. Examples include when mother hugs you, father gives you a goodnight kiss, your grandparents hold you in their arms, and you hold your friend's hands while playing.

How to explain bad touch

Bad touch makes you uncomfortable, feel unpleasant, and want to stop it. These are touches that hurt children's bodies or feelings (for example, hitting, pushing, pinching, and kicking). Examples include if you do not want to be touched, if someone touches your breasts or genitals (private body parts), and if someone touches you and tells you not to tell anyone.

Distinguish between bad touch and unwanted touch

These are touches that might be safe but that a child does not want from that person or at that moment. It is okay for a child to say "No" to an unwanted touch, even if it is from a familiar person. Help your children practice saying "No" in a strong, yet polite voice.

Become your child's friend

Spend quality time with your children. Listen to them when they are sharing about what they did during the day. Assure them that they can share anything with you.

Alerting children is not enough; we have to teach them what to do if someone touches them inappropriately. Tell children that if someone touches them in a way they do not like, say "No." It is their body and no one can touch it in a way that they do not like or that makes them uncomfortable. After saying, "No" or "Stop," they should:

- Get away from the place as fast as they can. Try not to be alone with that person in the future.
- Immediately call for help. Find a trustworthy person like parents or teachers and tell them everything that happened. They can scream for help if they cannot find an adult who they trust
- Tell them not to be scared of that person and not to feel bad about themselves. They have not done anything wrong.

Practice Questions

1. What items should a first aid box contain?
2. What should be the first response in case of a snake bite?
3. What should be do in order to prevent road injuries?

Key Takeaways

- Teachers' ability to explain the risky and unsafe behaviors improved.
- Teachers ensure that first aid boxes are maintained in schools.
- Students and teachers understand the difference between good and bad touch.

CHAPTER 8: MENTAL HEALTH

Learning Objectives

- To improve knowledge and understanding about Health, Mental health and mental disorders using a life cycle approach.
- To improve knowledge and understanding about learning disorders among children
- To learn about body image issues and their symptoms among adolescents
- To learn about emotional disorders (anxiety, depression, self-harm) and their symptoms among adolescents
- To learn about hazards of experimentation and risky behavior

Session Includes

- Definition of Health and Mental health
- Determinants of mental health-social, behavioral, environmental.
- Common mental disorders, their types
- Early identification of mental disorders
- Is it adolescence or it is more serious?

Key Resources

- Clinical Practice Guidelines for School Mental Health Program (Bharat, Kumar, and Mukesh, n.d.)
- Training module for in-service training and sensitization of key functionaries of central and state governments, local bodies and other service providers (Rehab Council of India 2015)

Definition of Health and Mental Health

Mental health, also known as behavioral health, relates to the social and emotional wellbeing of individuals and communities. The concept generally relates to the enjoyment of life, ability to cope with stresses and sadness, the fulfillment of goals and potential, and a sense of connection to others. The term 'mental health' is often misunderstood and interpreted as referring to mental ill health. This can be confusing, especially since our 'Mental health services' have been mostly concerned with the treatment of mental illness, rather than overall mental well-being.

The positive dimension of mental health is stressed in WHO's definition of health as contained in its constitution: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Mental health is defined as a state of health and well-being in which every individual realizes his or her own potential, can cope up with the normal stresses of life, can work productively and

fruitfully, and is able to contribute to his or her community. It is a positive state of mind and not just the absence of mental disorders.(WHO 2018)

In this positive sense, mental health is the foundation for well-being and effective functioning for an individual and for a community. It is more than the absence of mental illness, for the states and capacities noted in the definition have value in themselves. Neither mental nor physical health can exist alone.

Mental health is determined by overall patterns of thoughts, emotions, behaviors and body reactions. Each of the four mental health dimensions can influence all of the others, which can have a significant impact on our lives.

- **Thoughts:** The way you think about something has a big impact on your mental health. Changes in your thoughts often go along with changes in your mental health. When you feel well, it is easier to see positive aspects. When you are not well, it is easy to get stuck on negative things and ignore positive things.
- **Body reactions:** Body reactions are changes in your body functions such as heart rate, breathing, digestion, brain chemicals, hormones and more. Changes in your body reactions often go along with changes in your mental health.
- **Behaviors:** Behaviors are the helpful or harmful things you do. Other people can usually see your behaviors. Changes in behavior often go along with changes in mental health.
- **Emotions:** Emotions are the way you feel. They can be pleasant or unpleasant. Changes in emotions often go along with changes in mental health.

It is important to take care of your mental health just as much or more than your physical health. Mental health can affect school, work, family relationships, sleep, appetite, energy levels, ability to make decisions, physical health etc.

Determinants of Mental Health

Mental health is influenced by multiple biological, psychological, social and environmental factors that interact in complex ways. The factors that determine, or influence, mental health have been clustered into three key areas:

- **Structural level factors** include social, economic and cultural factors that are supportive of positive mental health, such as safe living environments, employment, and education;
- **Community level factors** include a positive sense of belonging, activities to highlight and embrace diversity, social support and participation in society;
- **Individual level factors** such as the ability to manage thoughts and cope with stressors.

Mental Health Determinants and Mental Well-Being

According to DSM-V, mental disorders are defined as a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning (Stein et al. 2010).

Causes of mental disorders

There is no single cause for mental health disorders; instead, they can be caused by a mixture of biological, psychological and environmental factors. People who have a family history of mental health disorders may be more prone to developing one at some point. Changes in brain chemistry from substance abuse or changes in diet can also cause mental disorders. Psychological factors and environmental factors such as upbringing and social exposure can form the foundations for harmful thought patterns associated with mental disorders. Only a certified mental health professional can provide an accurate diagnosis of the causes of a given disorder. Some of the factors are explained below:

Psychological Trauma: Some mental disorders might be triggered by psychological trauma, such as severe emotional, physical or sexual abuse; loss of some loved one, such as the loss of a parent; and neglect during childhood.

Physical Trauma: Injury to certain areas of the brain due to trauma has been linked to some mental disorders.

Heredity (genetics): Many mental disorders run in families, suggesting that the disorders, or more accurately, a vulnerability to the disorders, might be passed on from parents to children.

Environmental Stress: Stressful or traumatic events, like bullying or nonconductive environment at home or school, can trigger a disorder.

Symptoms of mental disorders

Emotions symptoms may include:

- Changes in mood
- Erratic thinking
- Chronic anxiety
- Exaggerated sense of self-worth
- Impulsive actions

Common Mental Disorders

- Depression
- Anxiety
- Psychosis
- Schizophrenia, Mania
- Mental Retardation
- Dementia
- Delirium

Early Identification of Mental disorders

We must be aware of some common symptoms of mental disorders, which are early warning sign for an underlying mental illness. If we see these symptoms in ourselves or our family members/friends/neighbors, we must seek the right care from a psychiatrist, therapist or counsellor. Symptoms to watch out for are broken down by age group below.

Younger children

- Poor grades despite hard work
- Sudden changes in school performance (e.g., drastic fall in grades in exams)
- Excessive worry or anxiety (e.g., refusing to go to school)
- Hyperactivity (e.g., excessive talkativeness, elation of mood which is different from her or his normal mood)
- Persistent nightmares
- Persistent disobedience or aggression
- Frequent temper tantrums.

Older children and pre-adolescents

- Smoking, alcohol, substance abuse
- Inability to cope with problems and daily activities
- Changes in sleeping and/or eating habits
- Excessive complaints of physical ailments
- Disobedience of authority, stealing, or destructive activities
- Prolonged negative mood or thoughts of death
- Frequent outbursts of anger

Adults

- Confused thinking
- Prolonged depression (sadness or irritability)
- Feelings of extreme highs and lows

- Excessive fears, worries and anxieties
- Social withdrawal
- Dramatic changes in eating or sleeping habits
- Strong feelings of anger
- Delusions or hallucinations
- Growing inability to cope with daily problems and activities
- Suicidal thoughts
- Denial of obvious problems
- Numerous unexplained physical ailments
- Smoking, alcohol, substance abuse

Do's and Don'ts for Good Mental Health

Express your feelings: Talking about your feelings helps you stay in good mental health and deal with times when you feel troubled.

Play/exercise regularly: Exercise releases chemicals in your brain that makes you feel good. Regular exercise can boost your self-esteem and help you concentrate, sleep, look and feel better. Encourage outdoor games.

Eat healthy food: There are strong links between what we eat and how we feel. A "healthy diet" is one that has enough of each essential nutrient, provides the right number of calories to maintain a healthy weight, and does not have too much fat, sugar, and salt.

Get enough sleep: Your mind and body will feel better if you sleep well. Every day your body needs time to rest and heal. Eight hour of sleep is necessary for all students.

Spend time with friends and family: Friends and family can make you feel included and cared for. They can offer different views on whatever is going inside your own head and thus can help you better understand a problem/situation. They help in keeping you active and help you solve your problems.

Care for others: Caring for others is often an important part of maintaining relationships with people close to you. It can even bring you closer to them.

Do something in which you are good: What do you love to do? What did you love doing in the past? Enjoying yourself helps in beating stress. Doing an activity that you enjoy, or you are good at and achieving something boosts your self-esteem.

Ask for help: None of us is a superhuman. We all get tired or overwhelmed by how we feel or when things go wrong. If things are getting too much for you and you feel you cannot cope up, ask for help. Do not hesitate in seeking advice from counsellor/therapist.

Do not consume tobacco products or alcohol: Tobacco and alcohol can precipitate mental illness.

Mental health issues in childhood and Adolescence

Specific Learning Disorder

According to Individuals with Disabilities Education Act (IDEA) USA, “Specific Learning Disability (SLD) means a disorder in one or more of the psychological process involved in understanding or in using languages, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. The term does not include children who are having learning problems which are primarily the result of visual, hearing, or motor handicaps; of mental retardation, of emotional disturbance or of environmental, cultural or economic disadvantages.” (U.S. Department of Education 2018)

Specific Learning disorder should not be confused with learning problems, which are primarily the result of visual, hearing, or motor handicaps; of intellectual disability; of emotional disturbance; or of environmental, cultural or economic disadvantages. A learning disability cannot be cured or fixed, however, with appropriate support and intervention, people with learning disabilities can achieve success in school, at work, in relationships, and in the community. “Learning Disabilities” is an “umbrella” term describing a number of other, more specific learning disabilities, such as dyslexia and dysgraphia. Some examples of learning disabilities as given by the Learning disability Association of America (LDA) (Learning Disabilities Association of America n.d.) are as follows:

- **Dyscalculia** is a specific learning disability that affects a person's ability to understand numbers and learn math facts
- **Dysgraphia** affects a person's handwriting ability and fine motor skills.
- **Dyslexia** specific learning disability that affects reading and related language-based processing skills
- **Dyspraxia** is a type of disability that causes problems with movement and coordination, language, and speech.
- **Non-verbal learning disabilities:** A child may have trouble interpreting nonverbal cues like facial expressions or body language and may have poor coordination.
- **Attention-deficit hyperactivity disorder (ADHD):** It includes difficulty staying focused and paying attention, controlling behavior and hyperactivity

Emotional Disorders

Emotional disorders are among the leading mental health-related causes of the global burden of disease in young people. Emotional disorders commonly emerge during adolescence and are characterized by depression, anxiety and fear. Adolescents with

emotional disorders may also experience excessive irritability, frustration, or anger. The symptoms may overlap, and adolescents may show symptoms of one or more condition. Younger adolescents may additionally develop emotion-related physical symptoms such as stomachache, headache or nausea.

Globally, depression is the fourth leading cause of illness and disability among adolescents aged 15–19 years. Anxiety is the ninth leading cause for adolescents aged 15–19 years and sixth for those aged 10–14 years. Emotional disorders can affect areas like schoolwork, school attendance, family, and other social relationships. At its worse, depression can lead to self-harm and suicide.

According to the mhGAP Intervention Guide for Mental, Neurological and Substance Use Disorders in Non-Specialized Health Settings, symptoms of emotional disorders among adolescents are:

- Problems with mood, anxiety or worry e.g. irritable, easily annoyed, frustrated or depressed mood, extreme or rapid and unexpected changes in mood, emotional outbursts, excessive distress
- Changes in functioning e.g. difficulty concentrating, poor school performance, often wanting to be alone or stay home.
- Excessive fear, anxiety or avoidance of specific situations or objects e.g. social situations, certain animals or insects, heights, closed spaces, sight of blood or injury.
- Changes in sleeping and eating habits
- Diminished interest or participation in activities
- Attention-seeking behavior

To prevent emotional disorders among adolescents, teachers and parents should encourage them to:

- **Get enough sleep.** Promote regular bed routines and remove TV or other electronic devices with screens from the sleeping area/bedroom.
- **Eat regularly.** All children/adolescents need three meals (breakfast, mid-day, and evening) and some snacks each day.
- **Be physically active.** If they are able, children and adolescents aged 5-17 should do 60 minutes or more of physical activity each day through daily activities, play, or sports.
- **Participate** in school, community, and other social activities as much as possible.
- **Spend time** with trusted friends and family.
- **Avoid** the use of drugs, alcohol, and nicotine

Suicide or self-harm

More than 40000 students have committed suicide over the last 5 years in India. (India Today 2019) According to the 2015 report by National Crime Records Bureau (NCRB)

every hour one student commits suicide in India (National Crime Records Bureau 2015). Worldwide, suicide is the third leading cause of death in older adolescents (15–19 years) (WHO 2019). There are various socio-economic and personal factors for suicide. Adolescents who are at higher risk include those who exhibit declining school grades, chronic sadness, family dysfunction, problems with sexual orientation, gender identity, physical or sexual abuse, alcohol or drug misuse, have a family history of suicide, or have made a previous suicide attempt.

Parents may not be able to prepare children mentally and psychologically for a lot of triggers in the world. Hence, it is imperative that schools with the help of teachers and students work to promote a positive and motivating environment. It is also important disseminate mental health education and promote coping skills in youth.

Risk-taking behavior

Risky behavior or risk-taking behavior is defined as “any consciously, or non-consciously controlled behavior with a perceived uncertainty about its outcome, and/or about its possible benefits, or costs for the physical, economic or psycho-social well-being of oneself or others.” (Killianova 2013)

Adolescence is an age when a person wants to have new experiences and there are a lot of influences around them such as peer-pressures, poor social media content etc., which may lead them to indulge in risky behaviors. There are chances that this urge to experience something new may be troublesome if it takes a negative route. Following are few of risk-taking behaviors observed among teenagers:

- Substance abuse- tobacco, alcohol, drugs etc.
- Bullying, vandalism
- Unprotected sexual activity
- Risky uses of social media such as blackmailing, harassing someone etc.
- Dangerous driving and not following road transport and safety norms

It is important for teachers and parents to channel the child's energy into safe and constructive activities like sports, creative arts, dancing etc. Talking about the risk-taking behavior and its consequences can help the child understand how much risk is involved in different situation and may later help him/her to take correct actions in a possibly risky situation.

Eating disorders

Adolescence represents a very crucial stage in the development of positive or negative body image. Many influences exist during the teen years such as puberty, wrong message about body images in media, peer pressure, socio-cultural pressure etc. that affect one's body shape, weight status, and appearance. It is a time when exposure to

these influences can be particularly damaging. The onset of puberty and the ensuing physical changes that this developmental stage brings can lead to feelings of insecurity and poor body image(Witmer 2020).

Body image relates to how people think and feel about their own body. It relates to a person's perceptions, feelings, and thoughts about his or her body and is usually conceptualized as incorporating body size estimation, evaluation of body attractiveness, and emotions associated with body shape and size(Ganesan, Ravishankar, and Ramalingam 2018).

A negative body image may lead to eating disorders such as Anorexia nervosa and Bulimia Nervosa. Eating disorders are serious and often fatal illnesses that are associated with severe disturbances in people's eating behaviors and related thoughts and emotions.

Anorexia Nervosa: People with anorexia nervosa may see themselves as overweight, even when they are dangerously underweight. People with anorexia nervosa typically weigh themselves repeatedly, severely restrict the amount of food they eat, often exercise excessively, and/or may force themselves to vomit or use laxatives to lose weight. Anorexia nervosa has the highest mortality rate of any mental disorder(DeNoon 2011). While many people with this disorder die from complications associated with starvation, others die of suicide.

Bulimia Nervosa: People with bulimia nervosa have recurrent and frequent episodes of eating unusually large amounts of food and feeling a lack of control over these episodes. This binge-eating is followed by forced vomiting, excessive use of laxatives or diuretics, fasting, excessive exercise, to compensate the over-eating. People with bulimia nervosa may be slightly underweight, normal weight, or over overweight.

Binge-eating disorder: People with binge-eating disorder lose control over his or her eating. Unlike bulimia nervosa, periods of binge-eating are not followed by purging, excessive exercise, or fasting. As a result, people with binge-eating disorder often are overweight or obese.

Symptoms of Eating Disorders		
Anorexia Nervosa	Bulimia Nervosa	Binge-eating Disorder
<ul style="list-style-type: none"> Extremely restricted eating Extreme thinness (emaciation) A relentless pursuit of thinness and unwillingness to maintain a normal or healthy weight Intense fear of gaining weight Distorted body image, a self-esteem that is heavily influenced by perceptions of body weight and shape, or a denial of the seriousness of low body weight 	<ul style="list-style-type: none"> Chronically inflamed and sore throat Swollen salivary glands in the neck and jaw area Worn tooth enamel and increasingly sensitive and decaying teeth as a result of exposure to stomach acid Acid reflux disorder and other gastrointestinal problems Intestinal distress and irritation from laxative abuse Severe dehydration from purging of fluids Electrolyte imbalance (too low or too high levels of sodium, calcium, potassium, and other minerals) which can lead to stroke or heart attack 	<ul style="list-style-type: none"> Eating unusually large amounts of food in a specific amount of time, such as a 2-hour period Eating even when you're full or not hungry Eating fast during binge episodes Eating until you're uncomfortably full Eating alone or in secret to avoid embarrassment Feeling distressed, ashamed, or guilty about your eating Frequently dieting, possibly without weight loss

Typical Teenage Behavior or Mental Health Issue?

Teenage behavior is governed by various developmental changes that are occurring in the brain. This may result into the teens being moody, distant and defiant at times. Most of the time these behaviors and attitudes are not symptoms of serious mental health issues but rather completely natural and temporary.

However, as explained in the previous sections, teachers and parents still need to look out for any red flags, which may be a symptom of something more serious. Look at the following table to understand what typical teen behavior and what is cause of concern:

Issue	Normal Teen Behavior	Concerning Behavior
Changing the way they look	Teens often want to fit into their peer groups and follow the ongoing fashion trend. It is normal for them to pay attention towards their bodies and clothes.	If the teenager is not eating well, overeating, extremely focused on losing weight in an unhealthy manner. It might be a cause of concern and teachers and parents should pay attention towards it.
Mood swings	Adolescence is a period of transition and teens have to work through new emotions, thoughts, and feelings. It is normal for teens to get moody, irritable, frustrated from time to time. They can go from the extreme happiness, to despair, to anger, all in the matter of a few days – or even a few hours.	Physically abusive behavior or destruction. Physical abuse or destruction is not a normal or healthy expression of emotion for anyone. It is also dangerous to the people around the individual acting out.
Grades	It is normal for teens to not want to do homework, or to worry about their exams. Depending from teen to teen the seriousness about studies could vary.	But if they exhibit extreme anxiety towards school work, aren't able to study even when they are stressed about it, having a hard-sleeping time, missing out on a number of assignments and tests. Then it is a cause of concern.
Being attracted towards the opposite sex	With the bodily and hormonal changes that are occurring in a teenager it is normal for them to be attracted to opposite sex. There is a need that teachers and parents counsel them about and talk about peer pressure and other potential harms.	If the teenager is sneaking out more than often, withholding information and lying, or is indulging in unprotected sexual behavior that is a cause of concern.

Practice Questions

1. What do we understand by mental health?
2. What are the various determinants of mental health?
3. What are the major mental health issues that are common among adolescents?
4. What are the common learning disabilities? Can they be cured?
5. What is the difference between anorexia and bulimia?
6. What are the behaviors that can help us identify if the adolescent is dealing with mental health issues?

Key Takeaways

- Teachers learnt that mental health is a positive concept regarding the well-being of a person.
- Teachers learnt that an adolescent's mental well-being may have an impact on them later in their lives.
- Teachers understood the major signs and symptoms an adolescent may show when they are dealing with mental health issues.
- Teachers learnt about various mental health issues that are common among adolescents.

CHAPTER 9: SEXUAL & REPRODUCTIVE HEALTH

Learning Objectives

- To improve knowledge, attitudes, and behavior related to sexual and reproductive health.
- To improve knowledge about male/female reproductive organs and their functions.
- To recognize symptoms of sexually transmitted infections (STIs), describe prevention methods, and identify where to access treatment.
- To learn about menstrual cycle, disorders, and hygiene.
- To learn about adolescent pregnancy and family planning.

Session Includes

- Sexual health
- Reproductive health and adolescence
- Menstruation and healthy menstrual hygiene practices
- Human immunodeficiency virus (HIV) and other STIs
- Use of contraceptives and family planning

Recommended Age Group

Except menstruation and healthy menstrual hygiene practices, which is meant for class 8 and above, all other sections to be taught to class 10 and above.

Key Resources

- Resources for further assistance on this chapter include RKSK Strategy Handbook (Ministry of Health and Family Welfare, Government of India 2014)
- Adolescent education program by NCERT (NCERT 2013)

Sexual Health

WHO defines sexual health as an integral part of overall health, well-being, and quality of life. It is a state of physical, emotional, mental, and social well-being in relation to sexuality, and not merely the absence of disease, dysfunction, or infirmity (WHO 2010).

Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of compulsion, discrimination, and violence. Good sexual and reproductive health

implies that people can have a satisfying and safe sex life, and the ability to reproduce and the freedom to decide if, when, and how often to do so.

To maintain one's sexual and reproductive health, people need access to accurate information and safe, effective, affordable, and acceptable contraception methods. They must be informed and empowered to protect themselves from STIs. And if and when they decide to have children, women must have access to services that can help them have a safe pregnancy and delivery, and healthy baby.

Reproductive Health and Adolescence

According to the WHO, reproductive health is the total well-being in all aspects of reproduction (behavioral, emotional, physical, and social). It is important to maintain good reproductive health for a healthy society and population (WHO and UNFPA 2014).

Adolescence is a period of life between 10 and 19 years of age and has specific health and developmental needs and rights. It is a time to develop knowledge and skills to manage emotions and relationships and acquire attributes and abilities are important for enjoying adolescence and assuming adult roles (WHO and UNFPA 2014).

Learning about one's body and how it will change during puberty is important for health and wellbeing for students. During puberty, the body changes from being a child to an adult. It is important to talk about puberty so that the students have the knowledge and tools to understand and handle these changes and keep themselves healthy. For boys, puberty usually happens between the ages of 10 and 15 years. Puberty in girls usually happens earlier, between the ages of 9 and 13 years old. This is only a range; boys and girls might start earlier or later than their peers but eventually, everyone goes through puberty. Because each person starts and experiences these changes differently, it is important to be kind and respectful during this time. Therefore, it is imperative that the adolescents are provided with proper nutrition, hygiene, and information related to sexual health.

In India, one-quarter of girls get married before they turn 18 (Girls Not Brides 2019). Malnutrition also continues to be a major problem, with a recent UNICEF report finding that over 80 percent of adolescents suffer from 'hidden hunger,' or micronutrient deficiencies (UNICEF 2019b). According to WHO, the most important problems for adolescents in low- and middle-income countries are pregnancy, unsafe abortions, and marriage (WHO and UNFPA 2014).

Various studies indicate that adolescents have little to no accurate information about STIs. At this age, curiosity about sexuality and interest in the opposite sex increases. Unfortunately, most adolescents get information from the internet and friends, and most of it is incorrect. Media also plays a major role in exposing them to sexually explicit materials, and can make boys perpetrate sexual violence (Sivagurunathan et al. 2015). Hence, it is

important to educate adolescents early—ideally before—about the changes happening in their body, sexuality, and prevention of STIs. Teachers and parents should also understand that adolescents use internet as a source of information more than the adults. Hence, it is important to guide them regarding the false information that is present over the internet and help them on how they can identify reliable sources.

Maintaining personal and genital hygiene during adolescence

Being healthy is necessary for an individual at any age but becomes especially so during adolescence. Good hygiene is critical for a healthy mind and body. As we know, adolescence is the onset of puberty, and adolescents must be prepared for the various pubertal changes in the body. For example, sweat glands are more active, which often causes more sweating and is complicated by the simultaneous pubic and armpit hair growth. Teenagers can reduce increased body odor by proper hand washing, regular bathing, washing, and ironing clothes, brushing teeth twice a day, etc.

Sexual debut

Adolescence is also an age of curiosity. With newly developed sexuality, adolescents may decide to have sex before they have enough information about and are emotionally ready for it. Inappropriate information that is often taken from media, pornography, and peers, can lead to major issues such as STIs and pregnancy.

Adolescent pregnancy

As per India's Marriage Act, the permitted age for marriage for girls is 18 years and for boys is 21. Early marriage before 18 is not allowed because girls are not prepared mentally or physically for motherhood. This could result in health problems for both the mother and the child. Despite illegality, many girls still marry before 18, so it is very important that boys and girls learn about reproduction at a young age.

Male and Female Reproductive Organs

Male reproductive organs and functions

Organs involved: Vas deferens, prostate glands, penis, and testes.

Functions:

- Produce, maintain, transport, and nourish sperm (the male reproductive cells), and protective fluid (semen).
- Discharge sperm within the female reproductive tract.
- Produce and secrete male sex hormones.

Female reproductive organs and functions

Organs involved: Ovaries, uterus, mammary glands (breasts), vagina, cervix, and fallopian tubes.

Functions:

- Menstruation and pregnancy.
- Produce and transport gametes.
- Produce and secrete sex hormones.
- Breasts produce milk for the baby. Breastmilk is the best food for a baby's first 6 months (starting from birth).

Menstruation

Menstruation occurs when female hormones in the body start functioning. It is a sign of fertility, which is the basis for procreation. Periods, chums, and menses all mean menstruation.

While the ovum ("egg") matures and travels through the fallopian tube, the endometrium grows and develops in preparation for the embryo. If the ovum is not fertilized in time or if it fails to implant into the endometrium, the arteries of the uterus constrict to cut off blood flow to the endometrium. The lack of blood flow causes cell death in the endometrium and the eventual shedding of tissue is menstruation. In a normal menstrual cycle, this shedding begins around day 28 and continues into the first few days of the new reproductive cycle.

Menstruation start and end

Girls have their first period when they reach puberty. Puberty usually happens between the ages of 9 and 15, but every woman's body develops at a different pace, and menstruation only commences when the hormones responsible for it are activated. Hence, there is no fixed age for commencement of menarche.

Women normally menstruate monthly (with the exception of during pregnancy) until their late 40s or mid-50s (a time known as menopause).

Menstrual cycle

The menstrual cycle is the monthly series of changes in a woman's body. Menstrual cycles vary from person to person, generally lasting 28 to 35 days but can be as short as 21 days and as long 40 days. It is important to consult a doctor if the cycle is irregular.

Menstrual hygiene

Hygiene-related practices during menstruation are of considerable importance. Poor menstrual hygiene is one of the major reasons for the high prevalence of reproductive tract infections (RTIs)—which contribute significantly to female morbidity—in developing countries. Other poor hygiene practices and risks:

- Using unclean pads or cloth may lead to bacterial or viral infections that may travel up the vagina up to the uterine cavity.
- Changing pads infrequently may lead to skin irritation and infection. Inserting unclean material into the vagina may cause infection in the cervix.
- Failure to wash hands after changing sanitary pads can lead to spread of infections such as hepatitis-B.



Source: www.menstrupedia.in

Good hygiene and management help us continue with daily routine such as going to school and doing household chores during menstruation. They also help us avoid situations such as leaking that cause embarrassment, which in turn, make us confident about our bodies and ourselves. Use of sanitary pads of good quality and size helps to carry out daily tasks in a routine manner. Girls should not miss school because of menstruation, and they can continue to participate in all activities, including sports.

Common menstrual issues and disorders

- Pre-menstrual syndrome (PMS): Consistent pattern of emotional and physical symptoms such as backaches, pain in lower abdomen, cramps, bloating and mood swings.
- Irregular cycles: Unpredictable long and short cycles with varying degree of blood loss.
- Menorrhagia: Excessive heavy and prolonged bleed that can lead to anemia. Menorrhagia can be fatal if left untreated.
- Polymenorrhea: Frequent periods or short cycles (fewer than 21 days).
- Amenorrhea: No bleeding for three or more months.

Girls who are experiencing any of these issues should not shy away from asking for medical help. Menstruation is an essential biological process and is completely normal. Teachers should create a comfortable environment in which girls can talk and ask about menstruation and should refer them to the nearest health centers if they are having problems. Teachers must have accurate information, be comfortable advising girls on self-care, and dispelling myths about menstruation.

Myths related to menstruation

Myths	Facts
Menstruating women and girls are unclean.	Menstruation is a sign of health and normal development. Menstrual blood is the same as blood from anywhere else in the body and is usually sterile.
Taking a bath/shower/washing the body during menstruation causes infection or infertility.	It is important to maintain good hygiene during menstruation. Taking a bath/shower/washing the body during menstruation prevents infections.
Menstruating women and girls should not eat certain foods (e.g. yoghurt, vegetables, cold water, sour food).	Menstruating people need to eat foods that contain iron, such as jiggery and dark green vegetables, to replace iron losses during bleeding. Also, eating fresh fruit and foods high in calcium is healthy and alleviates some symptoms of premenstrual syndrome. Calcium-rich food includes milk and milk products, dry fruits and dark green vegetables like spinach leaves. It is important to drink plenty of clean water during menstruation to keep the body hydrated.
People should not cut hair or nails while menstruating.	Cut hair and nails as usual during period.
A touch from a menstruating person will cause a plant to become dry, milk to curdle, and pickles to spoil.	Menstruation has no effect on plants, milk, or mirrors.
A person who is menstruating should eat and sleep separately from the family.	There is no reason to eat or sleep separately during menstruation.

Source: <https://simavi.org/wp-content/uploads/2018/10/MH-Manual-Digitaal-DEF.pdf>

Family Planning

Adolescent pregnancy is a great risk to the health of the mother and her child. Physiologically, an adolescent girl has not attained reproductive maturity and is more likely to suffer from anemia. There are high chances of prolonged labor, which can result in severe damage to the reproductive tract. Evidence shows that maternal deaths are higher among adolescents than older women, and their babies generally have low birthweight. Such babies are at higher risk of dying before their fifth birthday. Along with the physiological problems, there are various sociological and psychological problems related to early pregnancies. Early pregnancies in India are usually the result of family decisions, rather than choice of young women. They indicate and perpetuate a family system where young people, particularly girls, are dominated and have little or no decision-making power. Pregnancy outside marriage or that is as an outcome of rape or sexual sex abuse is physically and psychologically traumatic for the girl/woman, who is also subjected to terrible social stigma. Pregnancy under these circumstances reduces the opportunities available to girls and young women who have to cope with child bearing and childrearing, as they almost always are forced to leave school, which adversely affects their earning abilities and autonomy.

To avoid these risks, girls and boys should learn about the contraception methods that can save them from unwanted pregnancies and STIs including HIV.

Contraception methods

The methods may be broadly divided into two categories: spacing and permanent methods (there is also an emergency method, called the emergency contraceptive pill).

Spacing methods

These are the reversible methods of contraception to be used by couples who wish to have children in future. These include:

Hormonal birth control: oral contraceptive pills (OCPs) and injections

- OCPs: These are hormonal pills that are taken by a woman at a fixed time, every day. The regime includes placebo/iron pills to be consumed during the hormonal pill-free days. The method may be used by majority of women after screening by a trained provider.
- Injections: The birth control injection, known as Depo-Provera, prevents unplanned pregnancy for three months at a time. This shot has to be taken once every three months.

Hormonal birth control does not protect people from STIs.

Condoms

These are the barrier methods of contraception that offer the dual protection of preventing unwanted pregnancies and transmission of STIs including HIV. It is important that people who have multiple sexual partners and/or are men who have sex with men use condoms consistently. However, condoms can protect people from STIs only when used correctly, as shown in the image below.



Source: <https://www.cdc.gov/condomeffectiveness/male-condom-use.html>

Intra-uterine contraceptive device (IUCD)

Copper-containing IUCDs are a highly effective method for long-term birth spacing but should not be used by women who have uterine anomalies or who are at increased risk of STI/RTI (women with multiple partners).

Permanent methods

These methods may be adopted by either member of the couple and are generally considered irreversible.

Female sterilization

Two techniques:

- Minilap: Minilaparotomy involves making a small incision in the abdomen. The fallopian tubes are brought to the incision to be cut or blocked.
- Laparoscopic: Laparoscopy involves inserting a long thin tube with a lens into the abdomen through a small incision. The laparoscope allows the doctor to see and block or cut the fallopian tubes. This procedure can be done only by trained and certified MBBS doctor or specialist.

Male sterilization

Through a puncture or small incision in the scrotum, a trained MBBS doctor locates each of the two tubes that carries sperm to the penis (vas deferens) and cuts or blocks it by cutting and tying it closed or by applying heat or electricity (cautery). The man must use an alternative method of contraception for first three months after sterilization until no sperm is detected in his semen.

Two techniques:

- Conventional (incision)
- Non-scalpel vasectomy (puncture; no stitches).

Emergency contraceptive pill

This pill must be taken within 72 hours of the sexual act and should never be considered a replacement for a regular contraceptive.

Other Commodities

Pregnancy testing kits detect pregnancy as early as one week after the missed period, thus providing an early opportunity for medical termination of pregnancy, which saves lives lost to unsafe abortions.

Contraceptives benefits

- Protect against unwanted pregnancy.
- Convenient.
- Reversible.
- Improve maternal and health care.

Sexually Transmitted Infections

STIs are a major public health problem. The emergence of HIV has increased the importance of measures aimed at control of STIs. Many women, men, and children are affected by long-term complications of STIs, which for women include infertility, ectopic pregnancy, miscarriage, predisposition to cervical cancer and other chronic and fatal diseases. STIs in men present as genital ulcers, chronic urethritis, and epididymitis leading to infertility. Children who contract STIs may get blinding eye infections, pneumonia, and low birth-weight.

How STIs are transmitted

- Unprotected sexual activity.
- Transfusion of infected blood.
- Contact of open wound or mucus membrane with infected blood, pus, or mucus secretion.
- Mother to child during pregnancy and birth.

Symptoms of STIs	
Male	Female
Pain or burning during urination	Pain or burning during urination
Pain during ejaculation	Unusual discharge from vagina and vaginal bleeding
Abnormal discharge from penis, particularly colored discharge with a foul smell	Itchy genitals and pain in the lower abdomen
Sores or blisters on the penis or surrounding genital area	Lumps or skin growth around genitals or anus
Pain in lower abdomen, scrotal swelling	Dysmenorrhea, menorrhagia, irregular menstrual cycles

Common types of STIs are chlamydia, gonorrhea, genital warts, genital herpes, scabies, syphilis, and HIV.

HIV

Children and adolescents have the right to know how to avoid HIV infection before they become sexually active. As some young people may have sex at an early age, they should know about condoms and where they are available. Parents and schools share the responsibility of ensuring that children understand how to avoid HIV infection, and

learn the importance of tolerant, compassionate, and non-discriminatory attitudes toward people living with HIV.

HIV is passed from one person to another through blood, shared needles, and sexual contact. In addition, infected pregnant women can pass HIV to their baby during pregnancy or delivery, as well as through breastfeeding.

Over time, untreated HIV causes acquired immunodeficiency syndrome (AIDS), which interferes with the body's ability to fight infections. HIV is usually asymptomatic until it progresses to AIDS. AIDS symptoms include weight loss, fever or night sweats, fatigue, and recurrent infections.

These body fluids have been proven to transmit HIV:

- Blood.
- Semen.
- Vaginal fluid.
- Breast milk.
- Other body fluids containing blood.
- Amniotic fluid surrounding fetus.

What does not transmit HIV:

- Handshakes
- Hugs
- Kissing (unless you have mouth sores or cuts)
- Studying, working, eating together
- Saliva

It is important to understand that people with HIV are just like us and it is improper and unfair to discriminate against them. All people should be treated with respect and empathy.

Risk factors

According to WHO, the following behaviors are major risk factors of contracting HIV:

- Having unprotected anal or vaginal sex.
- Having another STI such as syphilis, herpes, chlamydia, gonorrhea.
- Sharing contaminated needles, syringes, etc. when injecting drugs.
- Unsafe injections, blood transfusions, tissue transplants, and unsterile cutting or piercing.

To find out if you are at risk for HIV, ask yourself the following questions:

- Have you had unprotected vaginal or anal sex (e.g., intercourse without a condom, oral sex without a latex barrier)?
- Have you shared or used unsterilized needles to inject street drugs or steroids or to pierce your skin?
- Have you had an STI?

Preventive measures

- Correctly use condoms, as illustrated in the previous section, during vaginal or anal penetration.
- Conduct interventions for people who are at higher risk of contracting HIV, such as sex workers, men who have sex with men, people who are transgender, and people who use drugs.

What to do if you test positive for HIV

- See a health care professional for a complete medical check-up (including a gynecological exam) and advice on treatment and health maintenance. Get tested for tuberculosis and other STDs.
- Inform your sexual partner(s) about their possible risk for HIV. Your local health department has a partner notification program that can assist you.
- Protect others from the virus by following the precautions noted in the section above (e.g., always use condoms, never share needles).
- Protect yourself from additional exposure to HIV.
- Avoid drugs and alcohol, practice good nutrition, and avoid fatigue and stress.
- Seek support from trustworthy friends and family when possible and consider getting professional counselling.
- Find a support group of people who are going through similar experiences.
- Do not donate blood, plasma, semen, body organs, or other tissue.

It is the responsibility of school to make adolescents aware of adolescent-friendly health clinics. Information about these clinics is provided on the National Health Mission's website, which can be accessed here:

<https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1247&lid=421>

Practice Questions

1. What do you understand by reproductive and sexual health?
2. What are the major symptoms of STIs?
3. After how many hours should one change her sanitary pads during menstruation?
4. Which groups are at higher risk of contracting HIV?
5. Can/should a girl get married as soon she starts her period? Comment.
6. What are the modes of HIV transmission?
7. Which contraceptive method protects a person from STIs?

Key Takeaways

- The teachers are now equipped with age-appropriate sexual and reproductive hygiene related information which will be disseminated among students.
- Teachers are well informed on how to create a safe and supportive environment where adolescents can develop and thrive.
- Teachers are well aware about STIs, their mode of transmission and preventive strategies. Teachers are well informed about adolescent friendly health clinics and can make their students more aware about the facilities available for them.

CHAPTER 10: IMMUNIZATION

Learning Objectives

- To understand immunization basics.
- To understand the importance of immunization.
- To learn about immunization safety.
- To learn about the National Immunization Schedule.

Session Includes

- Immunization
- Importance of immunization
- Immunization safety
- Role of students and teachers in immunization
- National Immunization Schedule

Key Resources

- Publications by Immunization Technical Support Unit, Ministry of Government and Family Welfare (Ministry of Health and Family Welfare, Government of India n.d.)
- Universal Immunization Program (Ministry of Health and Family Welfare, Government of India 2017)

What is Immunization?

Immunization is the process that protects people from infectious disease by administering one or more doses of a vaccine, either by injection or drops in the mouth. A vaccine is a biological preparation that provides protection from an infectious disease (WHO 2009).

Benefits of Immunization

Immunization protects children from vaccine-preventable infectious diseases. If vaccines are not administered per the national immunization schedule, then there is a risk of children becoming ill and possibly dying from a disease that could have been prevented. The development of effective vaccines has led to a huge decrease in childhood deaths. According to the WHO, the two public health interventions that have had most improved the world's health are clean water and vaccines.

Immunization in India

Universal Immunization Programme (UIP) provides free vaccinations against 12 life-threatening diseases: TB, diphtheria, pertussis, hepatitis B, polio, tetanus, meningitis, pneumonia, measles, rubella, Japanese encephalitis, and rotavirus. Of these, vaccines against Japanese encephalitis and pneumococcal pneumonia are administered in selected high-burden states/districts.

National Immunization Schedule

The following schedule is recommended by the Ministry of Health and Family Welfare, Govt. of India and is one of the most widely followed schedules.

Vaccine & Presentation	Protection	Number of Doses	Schedule
For Pregnant Women			
Tetanus & adult diphtheria (Td)-1- liquid vaccine	Tetanus and diphtheria	1	Early in pregnancy
Td-2- liquid vaccine	Tetanus and diphtheria	1	4 weeks after Td-1
Td- booster- liquid vaccine	Tetanus and diphtheria	1	If received 2 Td doses in a pregnancy within the last 3 years
For Infants and Children			
BCG (Bacillus Calmette Guerin)- administered intra-dermally	Tuberculosis	1	At birth (up to 1 year if not given earlier)
OPV (oral polio vaccine) liquid vaccine	Poliomyelitis	5	Birth dose for institutional deliveries, primary three doses at 6, 10, & 14 weeks; booster dose at 16–24 months
Hepatitis B liquid vaccine	Hepatitis B	4	Birth dose (within 24 hours) for institutional deliveries, primary three doses at 6, 10, & 14 weeks

DPT (diphtheria, pertussis and tetanus toxoid) liquid vaccine	Diphtheria, pertussis, and tetanus	5	Three doses at 6, 10, & 14 weeks; two booster doses at 16–24 months and 5–6 years
MR (measles and rubella) vaccine	Measles and rubella	2	9–12 months; 2nd dose at 16–24 months
Td (tetanus toxoid) liquid vaccine	Tetanus	2	10 and 16 years
JE vaccination (in selected high disease burden districts) lyophilized vaccine	Japanese encephalitis (brain fever)	2	9–12 months; 2nd dose at 16–24 months
Hib (given as pentavalent containing hib+DPT+hep B) liquid vaccine	Hib pneumonia and Hib meningitis	3	6, 10, & 14, weeks
Rotavirus vaccine	Diarrhea caused by rotavirus infection	3	6, 10, and 14 weeks

Source: Website of Ministry of Health & Family Welfare, GOI

Immunization campaigns

Periodical immunization campaigns like Intensified Mission Indradhanush are conducted to rapidly improve routine immunization coverage. There are also campaigns for disease elimination that cover different age groups and often involve schools. Immunization has eradicated smallpox globally. India received polio-free certification along with the entire South East Asia Region of WHO on 27th March 2014 by WHO; January 2019 marked eight years since a case of polio was reported in India (WHO 2019). In a country once considered the most difficult to stop polio, this milestone demonstrates the importance of strong surveillance systems, intensive vaccination drives, and targeted social mobilization efforts. But India must remain vigilant until a vaccine-preventable disease is eradicated completely. National Immunization Days vaccinate children across the country to maintain high levels of childhood immunity.

Reasons for lack of immunization

Despite scientific evidence supporting the fact that vaccines are fundamental tools for preventing infectious diseases, a percentage of the population still refuses some or all of

them. Vaccine hesitancy has become a widespread problem that complicated by a variety of personal and societal factors that influence immunization-related decisions.

Various studies have been conducted to understand the reasons behind lack of immunization in India. A cross-sectional study of 12–23-month-olds in Lucknow, Uttar Pradesh, suggested that major reasons for non-immunization were unawareness of the need of immunization; lack of faith in immunization; children being ill and hence not brought or postponed; polio as the only available or necessary vaccine; place of immunization too far; and fear of side reactions. A similar study conducted by Bholanath et al. in slums of Lucknow showed that lack of faith, lack of knowledge, and notion that polio was the only vaccine were significant independent reasons for non-immunization of the child. A study by Saxena et al. in the slums of Agra District showed that lack of awareness and fear of side effects were the main reasons for non-immunization of children time (Vohra et al. 2013).

Role of School Teachers/Adolescents in Immunization

Vaccines are a suggested school health topic because they are included in the educational part of the 2030 Agenda for Sustainable Development, which was adopted by all United Nations member states in 2015. Dubé et al. point out that “ensuring education and knowledge about vaccines in younger individuals (children, adolescents, young adults), possibly through school-based programs, may provide a good opportunity to encourage future vaccine acceptance by parents and adults and minimize the potential for development of hesitancy” (Dubé et al. 2016)

Teachers, who are often given the responsibility of taking care of the immunization programs in schools, have a significant role in immunization awareness, yet many lack it themselves. Teachers must be trained to understand the importance of immunization so they can fulfill their responsibility to help students develop attitudes and behaviors that will lead them to be healthy adults.

Practice Questions

1. What is immunization? What are its benefits?
2. What are the following vaccine-preventable diseases: BCG, MR, TT?
3. What is UIP? How many diseases does it cover?

Key Takeaways

- Teachers are prepared to strengthen immunization services in India.
- Teachers are aware of and can help the overcome immunization-related taboos that are prevalent in our society.

CHAPTER 11. PHYSICAL DISTANCING

Objectives

- To understand physical distancing.
- To understand the importance of practicing physical distancing.
- To understand and take precautionary measures.

Session Includes

- Physical distancing
- Importance of physical distancing
- Protective measures

Key Resources

- Social distancing advisory by Government of India
(<https://www.mohfw.gov.in/pdf/SocialDistancingAdvisorybyMOHFW.pdf>)

What is Physical Distancing?

Physical distancing means keeping space between yourself and people outside your home. It is a non-pharmaceutical infection prevention and control way to avoid/decrease contact between people who may be infected with a disease-causing pathogen and those who are not. Physical distancing prevents or slows the rate and extent of disease transmission in a community, which eventually decreases the disease's spread, morbidity, and mortality.

To practice physical distancing:

- Maintain at least 1 meter distance in market places, medical stores, hospitals, etc.
- Avoid crowded places and mass gatherings.
- Avoid frequent trips to the market.
- Do not shake hands or hug people with whom you do not live.
- Be patient and keep calm while shopping.
- Avoid non-essential social gatherings.
- Do not allow visitors at home or visit someone else's home.

Why is there a Need to Practice Physical Distancing?

The table below lists infectious diseases that have been or can be controlled by social distancing.

Disease	Basic knowledge
Novel coronavirus (COVID-19)	COVID-19 is an infectious disease caused by a new virus, SARS-CoV-2. The disease causes respiratory illness (like the flu) with symptoms such as a cough, fever, and in more severe cases, difficulty breathing.
Ebola virus disease	A hemorrhagic fever that is often fatal in humans. It is transmitted to people from wild animals and spreads through human-to-human transmission.
Influenza (pandemic, seasonal, zoonotic)	There are many strains of this virus, which causes respiratory infections and can spread quickly around the world. Countries try to mitigate its effects through a series of preventive measures.
Meningitis	A disease caused by bacteria. Common symptoms include a stiff neck, high fever, sensitivity to light, confusion, headaches, and vomiting.
Nipah virus	A virus transmitted from animals to humans. Symptoms range from none to acute respiratory infection and fatal encephalitis. Initial symptoms can include fever, headaches, myalgia, vomiting, and sore throat.
Plague	A disease manifested in several forms; bubonic, septicemic, and pneumonic. Initially looks like flu—starts with fever, chills, head and body aches, and weakness, vomiting, and nausea.
SARS	Severe acute respiratory syndrome originated in China in 2003. It starts with high fever and can show headache, an overall feeling of discomfort, body aches, diarrhea, dry cough, and pneumonia.
Smallpox	Caused by the variola virus, smallpox is the only infectious disease to be eradicated. The announcement was made by the WHO in 1980 after its global immunization campaign.
Yellow fever	A viral infection transmitted by mosquitoes. Many infected people do not show symptoms but others experience fever, muscle pain, backache, headache, loss of appetite, nausea, and vomiting.

In 2020, the COVID-19 pandemic began. COVID-19, which is caused by novel coronavirus known as SARS-CoV-2, spreads mainly among people who are in close contact (at least 1 meter) for a prolonged period. Spread happens when an infected person coughs, sneezes, or talks, and droplets from his/her mouth or nose are launched into the air and land in the mouths or noses of people nearby. The droplets can also be inhaled into the lungs. Recent studies indicate that people who are infected but asymptomatic can spread the infection.

Because SARS-CoV-2 can live for hours or days on a surface, depending on factors such as sun light and humidity, it may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching his/her own mouth, nose, or eyes. However, this is not thought to be the main way the virus spreads. Social distancing limit contact with infected people and contaminated surfaces.

Although the risk of severe illness is different for everyone, anyone can get and spread SARS-CoV-2. Everyone can help slow the spread and protect his/herself, his/her family, and his/her community.

Basic Protective Measures for an Epidemic/Pandemic Situation and COVID-19

Protective Measure	Reason
Wash hands frequently	
Regularly and thoroughly clean hands with an alcohol-based hand rub or soap and water.	Kills viruses that may be on your hands.
Maintain social distancing	
Maintain at least 1 meter (3 feet) distance between yourself and anyone who is coughing or sneezing.	When someone coughs or sneezes, s/he sprays small liquid droplets that may contain virus from his/her nose or mouth. If you are too close, you can breathe in the droplets.
Avoid touching eyes, nose, and mouth	
Avoid touching eyes, nose, and mouth.	Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to eyes, nose, or mouth. From there, the virus can enter the body and make you sick.
Practice respiratory hygiene	
Make sure you and the people around you follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze and disposing the used tissue immediately.	Droplets spread virus. By following good respiratory hygiene, you can protect the people around you from viruses such as cold, flu, and COVID-19.

If you have fever, cough, or difficulty breathing, seek medical care early

Stay home if you feel unwell. If you have a fever, cough, or difficulty breathing, call your health provider and/or follow the directions of your local health authority.

National and local authorities will have up-to-date information on the situation in your area. Calling in advance will allow your health care provider to direct you to the right health facility and will protect you and help prevent spread of viruses and other infections.

Stay informed and follow advice of your health care provider

Stay informed on the latest developments about COVID-19. Follow advice of your health care provider, the local and national public health authority, or your employer on how to protect yourself and others.

National and local authorities have up-to-date information on whether a disease is spreading in an area and advise people on how to protect themselves.

Sources: Centre for Disease Control & Prevention, WHO, and Ministry of Health & Family Welfare, GOI.

Practice Questions

1. How much distance should be maintained between two individuals for proper physical distancing?
2. How does respiratory diseases spread? Give an example.
3. What are symptoms of COVID-19?

Key Takeaways

- Teachers explain and show students how to practice social distancing at school and home.
- Teachers demonstrate other preventive measures and motivate students to take them at school and home.

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