

7

Chapter

Reaching the Age of Adolescence

We'll cover the following key points:

- Adolescence, Puberty and its changes
- Secondary Sexual Characters
- Reproductive Health



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scanning
the QR code.



Learning Outcomes

- **By the end of this chapter, students will be able to:**
- Grasp the concept of adolescence and understand the biological process of puberty.
- Recognize the key physical changes and secondary sexual characteristics that appear in both boys and girls during puberty.
- Understand the role hormones play in controlling reproductive functions, physical growth, and emotional development during adolescence.

Guidelines for Teachers

- Teachers play a vital role in discussing this sensitive topic with understanding and compassion. Adolescence can be a confusing and transformative time for students as they navigate physical and emotional changes. To foster an effective and supportive learning environment:
- Begin with Empathy
- Encourage Open Communication

NCF Curricular Goals and Competencies

- This chapter aligns with the overarching goals of health education, focusing on personal hygiene, reproductive health, and overall well-being. It specifically supports the objectives of CG-4 (C) 4.3 and 4.4), which aim to help students understand the key elements of health and adopt lifelong practices for maintaining good physical and mental health.



Mind Map

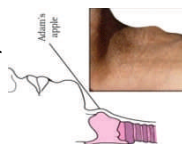
REACHING THE AGE OF ADOLESCENCE

Adolescence and Puberty

- The period of life, when the body undergoes changes, leading to reproductive maturity, is called adolescence.
- The human body undergoes several changes during adolescence. These changes mark the onset of puberty.

Changes at Puberty

- ✓ Increase in Height
- ✓ Change in Body Shape
- ✓ Voice Change
- ✓ Increased Activity of Sweat and Sebaceous Glands
- ✓ Development of Sex Organs
- ✓ Reaching Mental, Intellectual and Emotional Maturity



Secondary Sexual Characters

- Breast development in girls
- Facial hair (moustaches and beard) in boys
- Both genders grow hair underarms and in the pubic region.

Reproductive Phase of Life in Humans

Reproductive Phase of Life in Humans



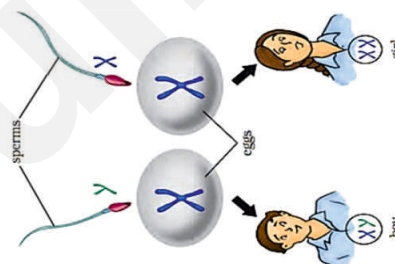
Role of hormones in Initiating reproductive Function

Hormones from the pituitary gland stimulate the testes and ovaries to release testosterone (in males) and estrogen (in females)

Released in the blood stream and reach parts of the body (Target site)

Stimulate changes in the body at onset of puberty

How is the Sex of the Baby Determined?



Hormones other than Sex Hormones

Endocrine Glands	Hormones secreted
1. Thyroid	Thyroxine
2. Pancreas	Insulin
3. Adrenal	Adrenaline
4. Pituitary gland	Growth hormone

Role of Hormones in Completing the Life History of Insects and Frogs

- Metamorphosis in insects is controlled by insect hormones.
- In a frog, it is controlled by thyroxine, the hormone produced by thyroid.
- Thyroxine production requires the presence of iodine in water.

Reproductive Health

- Nutritional Needs of the Adolescents
- Personal Hygiene
- Physical exercise
- Say "NO" to Drugs

Adolescence, Puberty and its changes

One evening, Riya notices some changes in herself and talks to her older sister, Ananya.



It begins from the day one is born. Human beings pass through four stages of growth — infancy, childhood, adolescence and **adulthood**. The rate of growth is different in each stage. It also varies from one individual to another.

Puberty

Puberty is the period of onset of sexual maturity in humans. During this stage, both the male and female reproductive organs become functional, making the individuals capable of reproduction. Reproduction may not be crucial for an individual's survival, but is essential for the continuation of species on the earth.

In History...

The concept of adolescence and the recognition of its significance evolved over time. During the early 20th century, psychologists like G. Stanley Hall began studying adolescence as a distinct stage of development, emphasizing the psychological and emotional changes that occur between childhood and adulthood.

This period, often characterized by rapid physical growth, hormonal changes, and the development of personal identity, became a central focus of educational and psychological research. The chapter "Reaching the Age of Adolescence" highlights the biological and social aspects of this transformative phase, underscoring the importance of understanding adolescence in shaping healthier, more informed societies.

KEYWORDS

Adulthood: The stage of human development following adolescence, characterized by full physical and psychological maturity.

Nature has devised ways by which a child gradually transforms to an adolescent and from an adolescent to an adult. The period of transition or change of a child into an adult human being is called adolescence. Let us discuss a few changes which happen during adolescence, the age when puberty sets in.

Changes During Puberty

On an average, girls reach puberty at the age of 10-15 years and boys around 12-16 years. This may vary depending on the climatic conditions of a place and genetic factors. At this time the following changes can be seen :

1. Changes in physical appearance

There is a sudden increase in the length of the bones of the legs and the arms. In males, the shoulders broaden, the chest widens and there is increase in muscle mass. In females, the part of the body below the waist-line becomes wider, the hips broaden and the breast develops. Milk secreting glands or the mammary glands develop in the breast.



Activity

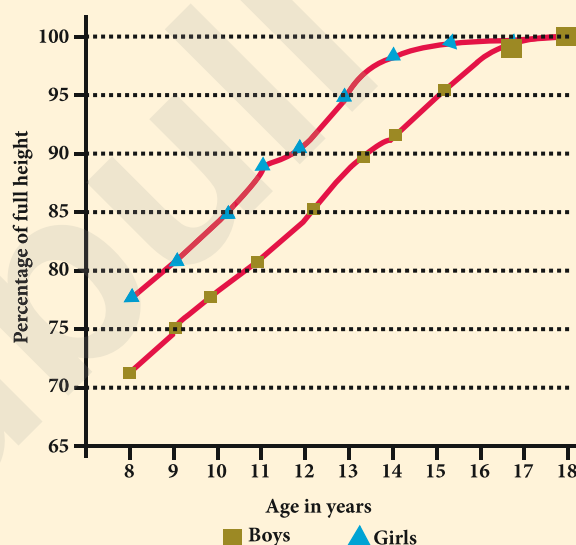
The following chart gives the average rate of growth in height for boys and girls with age. The figures in the columns represent the percentage of full height a person has reached at the corresponding age. Use the table to calculate the full height of a man.

Age in years	% of full height		Full height	
	Boys	Girls	Boys	Girls
08	72%	77%		
09	75%	81%		
10	78%	84%		
11	81%	88%		
12	84%	91%		
13	88%	95%		
14	92%	98%		
15	95%	99%		
16	98%	99.5%		
17	99%	100%		
18	100%	100%		



Activity

Use the data given in the first activity to draw a graph. Take age on the x-axis and per cent growth in height on the y-axis. Highlight the point representing your age on the graph. Find out the percentage of height you have already reached. Calculate the height you might eventually reach.



Graph showing percentage of height with age

2. Change in voice pattern

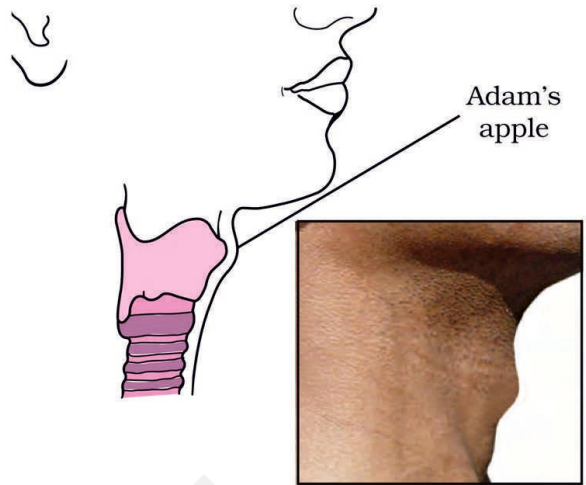
Males develop larger voice boxes or larynx which makes their voice deeper. The large voice box in males is often seen as a protruding structure and is referred to as Adam's apple. The females, on the other hand, have a high pitched voice.

$$\text{formula: } \frac{\text{Present height (cm)}}{\% \text{ of full height at this stage}} \times 100$$

3. Sweat and sebaceous glands

The sweat producing glands, the oil glands, or the sebaceous glands get activated and produce more of their secretions. There is also development of a characteristic body odour and frequent manifestation of acne especially on the face.

A few glands such as sweat glands, oil glands and salivating glands release their secretions through ducts. Endocrine glands release hormones directly into the blood stream. So, they are called ductless glands.



Adam's apple in a grownup boy

4. Development of typical hair pattern

At puberty, there is growth of hair in the armpits and the pubic area. In males, there is development of facial hair, beard and moustache.

5. Development of sex organs

The sex organs are present in infant stage also, it is only during the adolescent period that the male and the female sex organs get developed completely. The testes (male gonads) start producing sperms, and the ovaries (female gonads), start producing eggs. During the adolescent stage, the boys and girls become capable of reproduction.

6. Change in behaviour, attitude, and reaching emotional maturity

Adolescence is a period when one is learning rapidly, imbibing value, and forming opinions, As such there is a shift from a behaviour depicting dependence towards a more independent attitude. It may, at times, be associated with insecurity or anxiety which is soon overcome, if one understands the reason behind such changes.



Did you know

Adolescence is the thrilling stage when your body transforms from child to adult, typically between 10-19 years. Puberty, a key part of this phase, brings amazing changes like growth spurts, deeper voices for boys, and curves for girls due to hormonal surges. Did you know your brain also rewires itself, making teens more creative but sometimes impulsive? Emotional highs and lows are common, thanks to the super-active amygdala (emotion center). Fun twist: everyone grows at their own unique pace, so being an early or late bloomer is perfectly normal. And guess what?

Let's recall what we know

Apply Concept in Real-Life Context

Apply

1. What do you think causes emotional changes during adolescence, and how can they be managed effectively?
2. Why do boys and girls experience different physical changes during puberty? Provide examples.

Skills Covered: Critical and logical thinking, brainstorming, observation, applicative thinking

Examine Further

Analyse

1. How does regular exercise influence physical and emotional health during adolescence?
2. Why is it important to maintain good hygiene practices during puberty, and how can it impact health?

Skills Covered: Critical and logical thinking, brainstorming, emotional intelligence, applicative thinking

Self-Assessment Questions

Evaluate

1. Define adolescence and explain how it differs from childhood.
2. What are some common hormonal changes that occur during puberty?
3. List three emotional changes that adolescents often experience and explain why they happen.

Skills Covered: Reflective thinking, critical thinking, knowledge recall

Creative Insight

Create

Create a presentation using MS PowerPoint or LibreOffice Impress with illustrations and examples to explain "The Role of Hormones in Physical and Emotional Changes During Puberty." Present it in your class.

Skills Covered: Creativity, digital-age literacy, critical and logical thinking, brainstorming, applicative thinking

SCAN TO ACCESS



Take a Task

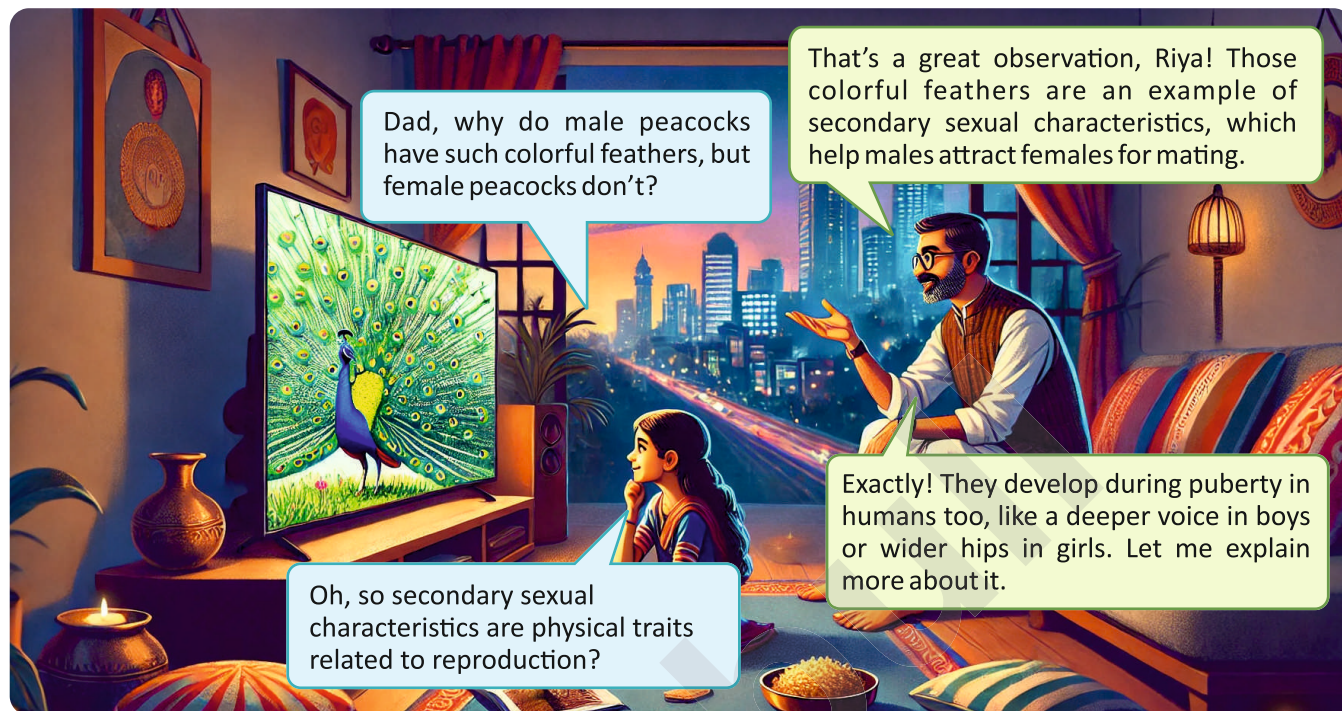


Watch Remedial

**Bloom's
Taxonomy**

Secondary Sexual Characters

One evening, Riya is watching a documentary about animals and notices something unusual.



During adolescence, significant changes occur in the body, and these changes are controlled by hormones. Hormones are chemical substances produced and released by special organs called endocrine glands. These glands form a part of the endocrine system, which regulates various functions in our body.

In boys, the male hormone called testosterone is produced by the testes at the onset of puberty. Testosterone causes several changes in boys, such as the growth of facial hair, deepening of the voice, and development of muscles. These changes help boys mature into adults.

In girls, the ovaries start producing female hormones, mainly **estrogen**, when they reach puberty. Estrogen causes the development of breasts and the growth of milk-secreting glands, also known as mammary glands, inside the breasts. It also plays a role in the development of wider hips and the menstrual cycle, which is an essential part of reproductive health.

The production of testosterone and estrogen is regulated by another important hormone secreted by the pituitary gland, often called the master gland of the body. The **pituitary gland** controls the release of many other hormones in the body, ensuring proper growth and development during adolescence. Hormones, therefore, play a crucial role in shaping the physical and emotional changes that occur during this important stage of life.

KEYWORDS

Pituitary Gland: A pea-shaped gland at the base of the brain that regulates vital bodily functions by secreting hormones.

Estrogen: A primary female sex hormone responsible for the development of female reproductive tissues and secondary sexual characteristics.

Role of hormones in initiating reproductive function

Endocrine glands release hormones into the blood stream to reach a particular body part called "target site". The target site responds to the hormones. There are many endocrine glands in the body. The testes and ovaries secrete sex hormones. The sex hormones are responsible for male and female secondary sexual characters and are under the control of pituitary gland. The pituitary gland secretes many hormones one of which makes ova mature in the ovaries and sperms form in the testes.

The onset of puberty is controlled by hormones.

Hormones from pituitary glands stimulate testes and ovaries to release testosterone and estrogen in males and females gradually.

Released in the bloodstream and reach parts of the body. (Target site).

Stimulate changes in the body at the onset of puberty.

Mental, intellectual and emotional maturity

- Adolescence brings a change in a person's way of thinking.
- Adolescents want to be independent.
- Mental and physical changes taking place during adolescence cause mood changes.
- He/She finds a way to recognise and manage his/her emotion.
- Intellectual development takes place and adolescents spend considerable time in thinking.
- Maturity in adolescents makes boys and girls interested in the opposite sex.
- Sometimes an adolescent may feel insecure while trying to adjust to the changes in the body and mind.



Did you know

Secondary sexual characteristics are the physical traits that develop during puberty and differentiate males and females beyond the reproductive organs. Think of a lion's magnificent mane or a peacock's vibrant tail—these are nature's way of signaling health and vitality to potential mates! In humans, traits like deeper voices and facial hair in males or wider hips and breast development in females play a similar role. Interestingly, these features are often influenced by hormones like testosterone and estrogen.

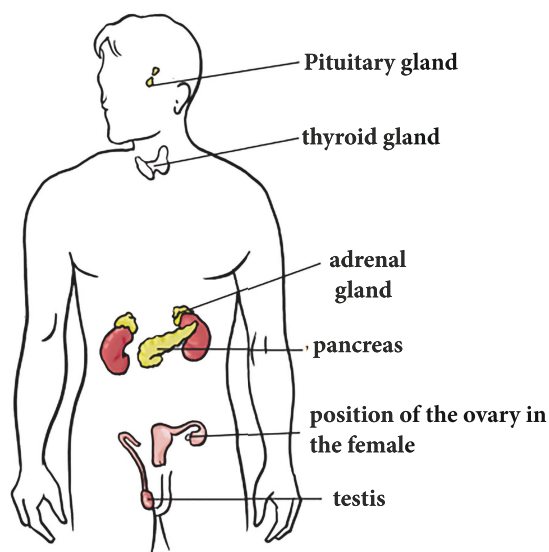
Various endocrine glands, their locations, the hormones secreted by them, and the functions performed by these hormones.

Gland	Location	Hormones secreted	Function(s)
Pituitary gland	Brain	A variety of hormones including growth hormone	Growth hormones cause a human body to grow. Hormones send signals to other organs inducing them to secrete hormones.
Pancreas	Pancreas	Insulin	It maintains a steady level of glucose or sugar in the blood and keeps the body supplied with sufficient fuel. Lack of insulin leads to diabetes, a condition where the level of sugar in blood increases.
Adrenal gland	Above the kidney	Adrenaline	It increases blood pressure and heart rate when the body experiences stress. It also helps the body to adjust to sudden stress.
Thyroid gland	Neck region	Thyroxine	It controls the rate at which food is oxidized by the cells to produce energy. Lack of thyroxine leads to goitre, a condition where a person has a big and bulging throat.
Gonads			
(i) Testes	Below the abdomen	Male sex hormones or androgens	Testosterone, one of the androgens, controls the secondary sexual characters in males.
(ii) Ovaries	Below the abdomen	Female sex hormones — progesterone and estrogen	Estrogen controls the secondary sexual characters in females. Progesterone maintains pregnancy.

Position of endocrine glands in the human body

If the thyroid gland is not functioning properly, a person may suffer from a disease called goitre. It means thyroid gland is not producing thyroxine hormones properly. If a man is suffering from diabetes, his pancreas is not producing sufficient amount of insulin. The adrenal gland secretes adrenalin. It helps the body to adjust to stress when one is very angry, embarrassed or worried.

Thyroid and Adrenal glands secrete the hormones when they get the information from the pituitary gland.

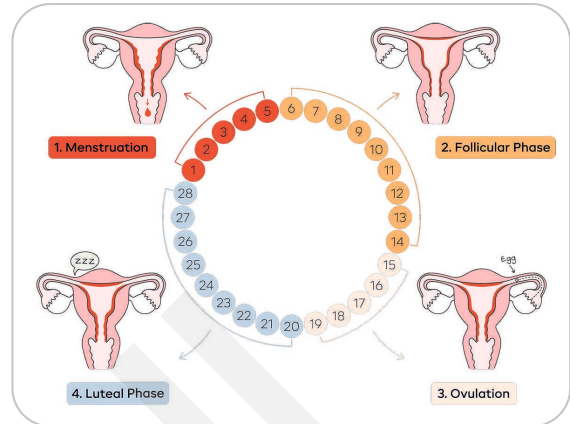


Position of endocrine glands in the human body

Reproductive phase of life in humans

Adolescents become capable of reproduction when their testes and ovaries begin to produce gametes. The capacity for maturation and production of gametes last for a much longer time in males than in females.

In females the reproductive phase of life begins at puberty (10-12 years) and generally lasts till the age of approximately 45-50 years. The ova begin to mature with the onset of puberty. One ovum matures and is released by one of the ovaries once in about 28 to 30 days. During this period, the wall of the uterus becomes thick so as to receive the egg. In case it is fertilized, it begins to develop. This results in pregnancy. If fertilization does not occur the released egg and thickened lining of the uterus along with its blood vessels are shed off. This causes bleeding in women which is called menstruation. Menstruation occurs once in about 28 to 30 days. The first menstruation flow begins at puberty and is termed menarche. At 45-50 years of age the menstruation cycle stops. This stage is called menopause. Initially menstrual cycle may be irregular. It takes some time to become regular.

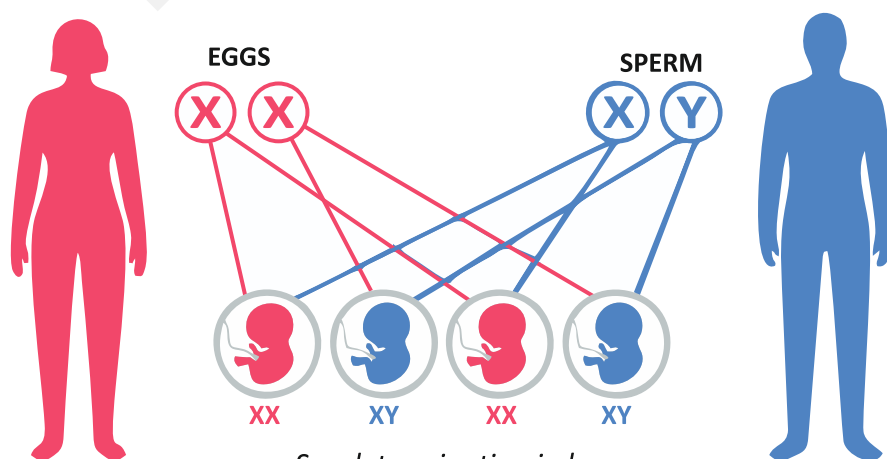


Duration of menstrual cycle

Menstrual cycle is controlled by hormones. The cycle includes the menstruation of the egg, its release, thickening of uterine wall and its break down. If pregnancy does not occur. In case the egg is fertilized, it begins to divide and then gets embeded in the uterus for further development of foetus.

Sex determination of a baby

Cell contains a nucleus in which thread-like structures called **chromosomes** are present. In human beings, each cell of the body contains 46 chromosomes or 23 pairs of chromosomes. Out of these, 22 pairs of chromosomes are common to both males and females and are called **autosomes**. Only one pair of chromosomes, called the sex **chromosomes**, is different in males and females. The two



chromosomes in this pair are denoted as X and Y. The sex of a human being is determined by the sex chromosomes. Females have XX chromosomes in every cell while males have an X chromosome and a Y chromosome.

The gametes — the egg and the sperm — have only 23 chromosomes. In the egg, out of 23 chromosomes one is the X chromosome. In sperms, one of the 23 chromosomes can be either an X chromosome or a Y chromosome, never both.

Let's recall what we know

Apply Concept in Real-Life Context

Apply

1. What are secondary sexual characteristics, and how do they differ between boys and girls?
2. Why do you think the development of secondary sexual characteristics is important during puberty? Provide examples.

Skills Covered: Critical and logical thinking, brainstorming, observation, applicative thinking

Examine Further

Analyse

1. How do secondary sexual characteristics contribute to the physical identity of an individual?
2. Why is it important to understand the changes in secondary sexual characteristics to promote self-confidence during adolescence?

Skills Covered: Critical and logical thinking, brainstorming, emotional intelligence, applicative thinking

Self-Assessment Questions

Evaluate

1. Define secondary sexual characteristics and explain their role during puberty.
2. List three secondary sexual characteristics in boys and girls, and explain their purpose.
3. How do hormones like testosterone and estrogen regulate the development of secondary sexual characteristics?

Skills Covered: Reflective thinking, critical thinking, knowledge recall

Creative Insight

Create

Create a chart or presentation using MS PowerPoint or LibreOffice Impress that visually compares the secondary sexual characteristics in boys and girls. Include illustrations and examples, and present it in your class.

Skills Covered: Creativity, digital-age literacy, critical and logical thinking, brainstorming, applicative thinking

SCAN TO ACCESS



Take a Task



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**Bloom's
Taxonomy**

Reproductive Health

One evening, Priya was studying in her room when her elder sister, Ananya, walked in to check on her.



To keep the body healthy, an individual needs to have a balanced diet, observe personal hygiene and undertake physical exercise. During adolescence, these needs become more essential as the body is growing. Any disease during adolescence period leads to retarded growth.

Nutritional needs of an adolescent

The diet for an adolescent has to be balanced. It should include proteins, carbohydrates, fats, minerals, and vitamins in requisite proportions.

Our meal of roti/rice/dal and vegetable is a balanced diet. Milk is a balanced food. Fruits and green vegetables provide us vitamins and minerals. Iron is needed to make **haemoglobin**. Therefore, iron-rich food such as leafy vegetables, jaggery, meat, citrus fruit and amla are good for adolescents.



KEYWORDS

Hemoglobin: is a protein in red blood cells that carries oxygen from the lungs to the rest of the body and returns carbon dioxide back to the lungs for exhalation.

Physical exercise

During adolescence, boys and girls need to keep their body fit. Walking and playing in fresh air keep them fit and healthy. Young boys and girls should take walks, exercise and play outdoor games regularly.

Personal hygiene

One should have a bath daily. In teenagers the increased activity of sweat glands makes the body smelly. All parts of the body should be washed and cleaned properly every day. Girls should take special care for cleanliness during the time of menstrual flow.



Physical Exercise

Adolescent pregnancy

You might be knowing that in our country the legal age of marriage is 18 years for girls and 21 years for boys. This is because teenage mothers are not prepared mentally or physically for motherhood. Early marriage and motherhood cause health problems in the mother and the child. It also curtails employment opportunities for the young women and may cause mental agony as she is not ready for responsibilities of motherhood.

Say 'No' to Drugs

Adolescence is a period of much activity in the body and mind which is a normal part of growing up so do not feel confused or insecure. If any body suggests that you will get relief if you take some drugs, just say 'No' unless prescribed by the doctor. Drugs are addictive. If you take them once, you feel like taking them again and again. They harm the body in the long run. They ruin health and happiness.

You must have heard about AIDS which is caused by a dangerous virus HIV. This virus can pass on to a healthy person from an infected person by sharing the syringes used for injecting drugs. It can also be transmitted to an infant from the infected mother through her milk. The virus can also be transmitted through sexual contact with a person infected with HIV.



Did you know

The human body releases around 500 eggs in a lifetime, despite starting with over 1-2 million at birth! Meanwhile, men produce 1,500 sperm every second, adding up to over 500 billion in a lifetime! Nature loves redundancy when it comes to reproduction.

Let's recall what we know

Apply Concept in Real-Life Context

Apply

1. Why is it important to learn about reproductive health at an early age, and how can this knowledge influence personal decisions?
2. How does maintaining reproductive health contribute to overall well-being? Provide examples.

Skills Covered: Critical and logical thinking, brainstorming, observation, applicative thinking

Examine Further

Analyse

1. What role does nutrition play in maintaining reproductive health during adolescence and adulthood?
2. How do regular medical checkups help in ensuring good reproductive health?

Skills Covered: Critical and logical thinking, brainstorming, emotional intelligence, applicative thinking

Self-Assessment Questions

Evaluate

1. What is reproductive health, and why is it essential?
2. Identify and explain two practices that help in maintaining good reproductive health.
3. How can poor reproductive health affect the emotional and physical state of an individual?

Skills Covered: Reflective thinking, critical thinking, knowledge recall

Creative Insight

Create

Create a poster or presentation using MS PowerPoint Impress on the topic: **"Essential Practices for Maintaining Reproductive Health Among Adolescents."**
Use illustrations, statistics, and examples to make it engaging and informative. Present it to your class.

Skills Covered: Creativity, digital-age literacy, critical and logical thinking, brainstorming, applicative thinking

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**Bloom's
Taxonomy**

SUMMARY



1. Adolescence, Puberty, and Its Changes

Adolescence Defined:

The transitional phase between childhood and adulthood, typically between 10 and 19 years of age, marked by significant physical, emotional, and social changes.

Puberty:

The biological process during which the body matures sexually, triggered by hormonal changes.

Physical Changes:

- Growth spurts (increase in height and weight).
- Changes in body shape due to muscle and fat distribution.

Hormonal Activity:

Pituitary gland activates the secretion of sex hormones: testosterone in males and estrogen in females.

Emotional and Behavioral Changes:

Mood swings, increased self-awareness, and a heightened sense of independence.

2. Secondary Sexual Characters

Development of characteristics that differentiate males and females but are not directly related to reproduction.

In Boys:

- Growth of facial and body hair (beard, mustache, chest hair).
- Deepening of the voice due to the growth of the larynx (voice box).
- Broadening of shoulders and muscle development.

In Girls:

- Development of breasts and widening of hips.
- Growth of pubic and underarm hair.

Common Changes in Both:

- Oilier skin and the appearance of acne.
- Growth of hair in armpits and the genital region.

3. Reproductive Health

Definition:

Maintaining physical, emotional, and social well-being in all aspects of the reproductive system.

Key Components:

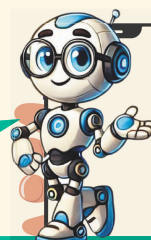
- **Personal Hygiene:** Regular cleaning of the body, especially during menstruation for girls, to avoid infections.
- **Balanced Nutrition:** A diet rich in vitamins, minerals, and protein to support rapid growth and hormonal changes.
- **Awareness of Reproductive Rights:** Educating adolescents about safe practices, family planning, and the consequences of early pregnancies.

EeeBee: Your AI Buddy

Explore! **Reaching the Age of Adolescence** with EeeBee AI Buddy.

Hi Friend! Use prompts to ask me questions about the chapter we just finished! eeee, lets go!

Start by Scanning this QR Code:





Gap Analyzer™
Take a Test



EXERCISE

That turn curiosity into confidence—let's begin!



A. Choose the correct answer.

- Adolescence is the period of life between:

(a) 3 - 7 years	<input type="checkbox"/>	(b) 12 - 18 years	<input type="checkbox"/>
(c) 30 - 40 years	<input type="checkbox"/>	(d) 0 - 5 years	<input type="checkbox"/>
- Which hormone is responsible for the development of secondary sexual characters in boys?

(a) Estrogen	<input type="checkbox"/>	(b) Progesterone	<input type="checkbox"/>
(c) Testosterone	<input type="checkbox"/>	(d) Insulin	<input type="checkbox"/>
- What triggers the onset of puberty in humans?

(a) Increase in insulin production	<input type="checkbox"/>	(b) Hormonal changes	<input type="checkbox"/>
(c) Change in sleeping patterns	<input type="checkbox"/>	(d) Lack of physical activity	<input type="checkbox"/>
- Which of the following is NOT a secondary sexual character?

(a) Growth of body hair	<input type="checkbox"/>	(b) Voice deepening in boys	<input type="checkbox"/>
(c) Development of breasts in girls	<input type="checkbox"/>	(d) Development of brain	<input type="checkbox"/>
- Reproductive health does NOT include:

(a) Awareness about sexually transmitted diseases	<input type="checkbox"/>
(b) Maintaining personal hygiene	<input type="checkbox"/>
(c) Physical and mental well-bein	<input type="checkbox"/>
(d) Ignoring balanced diet	<input type="checkbox"/>

B. Fill in the blanks.

- The period of transition from childhood to adulthood is called _____.
- The process in which boys and girls become capable of reproduction is termed _____.
- _____ hormone is responsible for secondary sexual characteristics in girls.
- Adolescence is marked by rapid physical growth and _____ changes.

C. Write True or False.

- Adolescence begins at the same age for every individual. _____
- Testosterone is a hormone responsible for changes in boys during puberty. _____
- Reproductive health includes both physical and emotional well-being. _____

D. Define the following terms.

1. Adolescence
2. Puberty
3. Hormones
4. Reproductive Health
5. Secondary Sexual Characters

E. Match the columns.

Column A

1. Estrogen
2. Testosterone
3. Puberty
4. Reproductive Health
5. Secondary Characters

Column B

- (a) Girls' puberty
- (b) Voice deepening
- (c) Growth spurt
- (d) Hygiene
- (e) Hormonal changes

F. Give reasons for the following statements.

1. Adolescence is a crucial stage in human development.
2. Balanced nutrition is important during puberty.
3. Hormones play a vital role in bringing about changes during adolescence.
4. Proper hygiene is necessary for maintaining reproductive health.
5. Adolescents often experience emotional changes during this phase.

G. Answer in brief.

1. What is the significance of secondary sexual characters?
2. How does puberty affect physical growth?
3. Discuss the importance of maintaining reproductive health.
4. List three changes that occur in girls and boys during adolescence.
5. Why is emotional well-being important during adolescence?

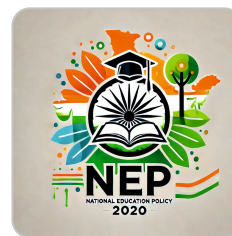
H. Answer in detail.

1. Explain the physical and hormonal changes that occur during puberty in boys and girls.
2. Why is adolescence referred to as a period of transition?
3. Describe the role of hormones in the development of secondary sexual characters.
4. What are the essential components of reproductive health, and why are they important?
5. How does a balanced diet and regular exercise contribute to healthy adolescence?



**Your Marks Won't Define You!**

With the new focus on holistic progress cards, your personality, creativity, and extracurricular talents will shine.



Skill-based Activity

**Activity Time****STEM****Understanding Physical and Emotional Changes During Adolescence**

1. Create a timeline that highlights the major physical changes boys and girls experience during adolescence.
2. Reflect on how these changes can affect emotional well-being and relationships with peers and family members.
3. Write a brief note on the importance of maintaining a healthy lifestyle, including balanced nutrition and regular exercise, during adolescence.
4. Discuss how societal expectations can impact adolescents differently based on gender roles and stereotypes.

Skills Developed: Creativity, Observation, Critical Thinking, Logical Reasoning, Reflective Thinking

Role of Hormones in Adolescence**Art****Research and Analyze**

1. Research the role of hormones like testosterone and estrogen in the physical and emotional changes during adolescence.
2. Explain how hormonal imbalances can affect growth and behavior.
3. Create a chart that compares male and female hormonal changes during puberty.
4. Suggest strategies to deal with common hormonal effects such as mood swings, acne, or growth spurts.

Skills Covered: Creativity, Imagination, Problem-solving, Environmental Awareness

Mental Health Awareness During Adolescence

Group Activity

1. In groups, research common mental health challenges adolescents face, such as stress, anxiety, or peer pressure.
2. Discuss how social media and technology affect adolescent mental health.
3. Create a role-play or video demonstrating strategies to cope with stress and build resilience.
4. Share your group's findings with the class in an engaging and creative format.

Skills Developed: Research, Collaboration, Communication, Creativity, Critical Thinking

Adolescence and Personal Hygiene

Case to Investigate

1. Identify common hygiene issues adolescents face due to increased hormonal activity.
2. Propose a weekly self-care plan to maintain personal hygiene and prevent issues such as acne, body odor, and infections.
3. Create a public awareness poster or infographic highlighting the importance of personal hygiene during adolescence.
4. Discuss the role of parents, teachers, and peers in educating adolescents about personal care.

Skills Developed: Research, Problem-Solving, Creativity, Practical Thinking

Adolescence and Social Behavior

Aligning with SDGs

1. Write about how relationships with parents, friends, and teachers evolve during adolescence.
2. Identify the role of communication in resolving conflicts that arise during this stage.
3. Discuss the importance of empathy and mutual respect in building healthy relationships.

Aligned with SDGs:

SDG 3: Good Health and Well-being, SDG 4: Quality Education, SDG 5: Gender Equality

Skills Developed: Analytical Thinking, Creativity, Communication, Logical Reasoning

Nutrition for Adolescents

Integrated Learning

1. Research the nutritional requirements of adolescents and compare them to those of younger children.
2. Identify foods rich in essential nutrients like calcium, iron, and protein, and explain their role in adolescent growth.
3. Design a one-week meal plan for a healthy adolescent lifestyle.
4. Discuss the impact of malnutrition or overeating during adolescence on physical and mental development.

Skills Developed: Research, Logical Reasoning, Problem-Solving, Practical Application