

PARAGON CONVENT SCHOOL

SECTOR : 24 B, CHANDIGARH

LESSON - 10

REACHING THE AGE OF ADOLESCENCE

Summary :

- Hormones released by the glands of the endocrine system are responsible for various emotions experienced by us and also play an important role in the growth and development of the body, especially during adolescence.
- Endocrine glands which secrete hormones are ductless glands. Endocrine glands pour hormones directly into the blood stream.
- The major glands that make up the human endocrine system are pituitary, thyroid, adrenals, pancreas, ovaries and testes.
- Human beings are capable of reproduction after puberty sets in.
- Various physical and emotional changes take place in girls and boys during puberty.
- Adolescence is characterised by the development of breasts in girls and facial hair appear in boys. These are referred to a secondary sexual characteristics.
- The cycle of producing and releasing mature egg, thickening of the uterus wall, and its shedding if fertilisation does not occur is known as the menstrual cycle.
- In insects, moulting and metamorphosis are controlled by insect hormones.
- Nutritional requirements of the body increases tremendously during adolescence. Personal hygiene and physical exercise are also very important.
- It is also very important to say no to drugs and avoid them at all costs.

Multiple Choice Questions (Page No. 142)

1. (c) 2. (d) 3. (d) 4. (c)

Multiple Choice Questions (Page No. 146)

1. (c) 2. (c) 3. (b) 4. (a) 5. (a)

SECTION A

Oral Questions

Q1.- What is meant by adolescence?

Ans.- The period of life, when the body undergoes changes, leading to reproductive maturity is called adolescence.

Q2.- How many chromosomes do human beings have?

Ans.- 46

Science Quiz

Q1.- Name one factor on which the height of a person depends.

Ans.- Genetic character

Q2.- What is the other name of ductless glands?

Ans.- Endocrine glands

WORKSHEET

Tick (✓) the correct options

1. (c) 2. (c) 3. (c) 4. (b)

Circle the odd ones. Give reasons for your choice

1. Infancy Growth Childhood Adolescence Adulthood

Ans.- Growth - It is a natural process, whereas others are various stages of growth in humans.

2. Tobacco Alcohol Cocaine Opium AIDS

Ans.- AIDS - It is a disease, whereas others are drugs.

Fill in the blanks

1. sperms 2. Adam's apple 3. acne and pimples 4. Pituitary

SECTION B

Multiple Choice Questions

1. (a) 2. (d) 3. (b)

Very Short Answer Questions

Q1.- Which comes earlier in the life of a woman - menarche or menopause?

Ans.- Menarche

Q2.- What happens if the growth hormones are secreted - a) less in quantity
b) excessive in quantity?

Ans.- (a) Dwarfism (b) Gigantism

Q3.- How are sex chromosomes represented in a) males and b) females?

Ans.- (a) XY b) XX

Short Answer Type - I Questions

Q1.- List two changes that occur in female's body during pregnancy.

Ans.- (i) Menstrual cycle stops

(ii) Enlargement of breasts

Q2.- Where is pituitary gland located? Name the hormone secreted by pituitary gland.

Ans.- Pituitary gland is located at the base of the brain. It secretes the growth hormone.

Q3.- Which hormone controls metamorphosis? Give another function of this hormone.

Ans.- Thyroxine hormone controls metamorphosis. It also stimulates the rate of cellular oxidation of carbohydrates, proteins and fats in humans.

Q4.- Define adolescence.

Ans.- The period of life when the body undergoes changes leading to reproductive maturity is called adolescence.

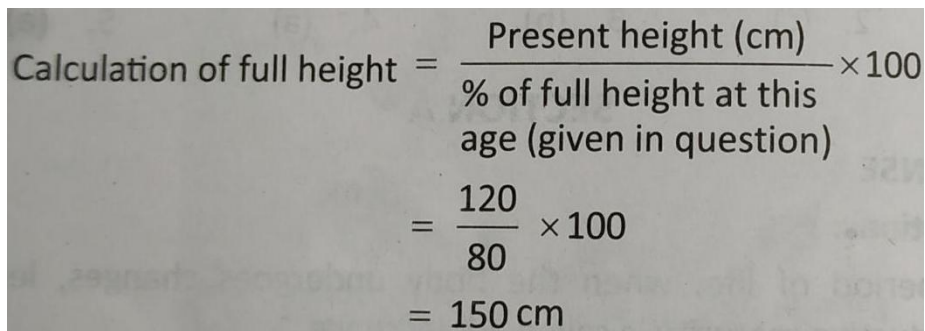
Q5.- Why do adolescents often find themselves confused?

Ans.- Adolescents often find themselves confused due to changes in levels of hormones.

Short Answer Type-II Questions

Q1.- A boy is 11 year old and has 80% of his full height. He is 120cm tall. Calculate his full height at the end of his growth period.

Ans.-


$$\begin{aligned}\text{Calculation of full height} &= \frac{\text{Present height (cm)}}{\% \text{ of full height at this age (given in question)}} \times 100 \\ &= \frac{120}{80} \times 100 \\ &= 150 \text{ cm}\end{aligned}$$

Q2.- What is the difference between menarche and menopause?

Ans.- The first menstrual flow which begins at puberty in women is called as menarche. This marks the beginning of reproductive life of females.

The stoppage of menstrual flow at the age between 45-50 years in female is called menopause.

Q3.- What happens to the ovum when it is - a) fertilised b) not fertilised in the fallopian tube?

Ans.- (a) If the egg (ovum) gets fertilised by a sperm in the fallopian tube, the fertilised egg gets embedded in the lining of the uterus and this results in pregnancy. The fertilised egg begins to divide to form an embryo.

(b) If the egg (ovum) does not get fertilised, then the thick and soft inner lining or wall of the uterus is no longer needed and hence it breaks, and leads to menstruation.

Q4.- Rohan studies in class 8. He experiences certain physical and emotional changes in himself. He is very confused. His father observes the changes in Rohan and guides him about the natural changes common to all the adolescents.

a) What type of changes do you think Rohan is experiencing?

b) What can you learn from Rohan and his father?

Ans.- (a) Rohan is probably experiencing the following changes:

i) He has started giving more importance to his friends, his peer group and less importance to his parents/guardians.

ii) He often feels confused, has emotional outbursts, feels sad, or has strong emotions or moods that change quickly.

iii) He has become more independent and self-conscious. He has started feeling the need for acceptance and understanding.

iv) He is frequently found to be confused between what is 'right' and what is 'wrong'.

v) He feels insecure while trying to adjust to the changes in the body and mind.

vi) He feels attracted towards the opposite sex.

(b) We learn to be honest, sharing and convey what we feel to our parents. We should seek their advice whenever we feel confused. We learn to be caring, friendly and supportive from Rohan's father. We should always help and guide our

young children as and when they need us. We should provide them a strong mental support and the right guidance.

Long Answer Questions

Q1.- a) What is reproductive health?

b) State the conditions necessary to maintain good reproductive health during adolescence.

Ans.- (a) Health of an individual is defined as his/her state of physical, social and mental well-being. An adolescent should follow a healthy lifestyle which includes proper nutrition, personal hygiene, physical exercise and maintaining good habits to be healthy and fit.

(b) The conditions necessary for maintaining good reproductive health during adolescence are -

(i) Having balanced diet

(ii) Personal hygiene

(iii) Physical exercise

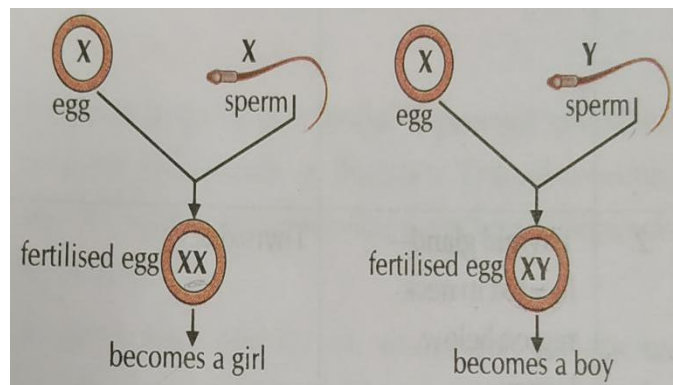
(iv) Say 'No' to drugs

Q2.- How is the sex determined in human beings? Explain with the help of a flow chart.

Ans.- All human beings have 23 pairs of chromosomes in the nucleus of their cells. Out of these 46 chromosomes, 44 are called autosomes and remaining two are called sex chromosomes. They are represented as X and Y chromosomes. In females, the cells contain two identical X chromosomes. So, the sex chromosomes in females are represented by XX, In males, the cells contain two different chromosomes, X and Y. So, the sex chromosomes in males are represented as XY. Each gamete contains only one sex chromosome. An egg always contains X chromosome, whereas a sperm may contain either X or Y chromosome.

◆ If a sperm having X chromosome fertilises the egg, the zygote would have two X chromosomes. It develops into a female child.

- ◆ If a sperm carrying the Y chromosome fertilises the egg, the zygote would have one X and one Y chromosome. It develops into a male child.



Q3.- Give the location and functions of the following endocrine glands :

a) pituitary b) thyroid c) pancreas d) adrenal.

Ans.- (a) Pituitary gland- It is located at the base of the brain. It controls the overall development and growth of the body, development of muscles and bones.

(b) Thyroid gland- It is located in the neck region below the larynx. It stimulates the rate of cellular oxidation of carbohydrates, proteins and fats.

(c) Pancreas- It is located below the stomach. The hormones secreted from pancreas maintain the blood sugar level.

(d) Adrenal gland- It is located on the top of each kidney. It controls emotions like fear and anger. It also regulates blood pressure and heartbeat.