



BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034

SUBJECT:- BIOLOGY

CLASS VIII : - REACHING THE AGE OF ADOLESCENCE

Week: 5th October to 9th October'20.

No of blocks: 1

GUIDELINES FOR STUDENTS

Dear Students

- **Refer to the following contents of the lesson.**
- **These notes will help you to understand the concept of the lesson.**
- **Do the assignment questions in the Biology notebook.**
- **Suitable video links have been provided for better understanding of the concept.**
- **Do read NCERT textbook for better understanding of these concepts.**

SUBTOPICS

- **REPRODUCTIVE PHASE OF LIFE IN HUMANS**
- **DETERMINING THE SEX OF THE BABY**
- **HORMONES OTHER THAN SEX HORMONES**
- **ROLE OF HORMONES IN COMPLETING THE LIFE HISTORY OF INSECTS AND FROGS**

Instructional aids /Resources

- **Presentation by screen sharing**
- **YouTube videos**
- **NCERT textbook pdf**
- **LINK TO THE CHAPTER IN NCERT TEXTBOOK**
<https://ncert.nic.in/textbook.php?hesc1=10-18>

YouTube Links:

<https://www.youtube.com/watch?v=IIngkUwD3tE>

<https://www.youtube.com/watch?v=AzkXQBzZEIE>

<https://www.youtube.com/watch?v=GM-qP7h59qU>

LEARNING OUTCOMES

1. Learners will be able to explain the functions of various endocrine glands.
2. Learners will be able to enlist the various endocrine glands.
3. Learners will be able to analyse the health issues due to malfunctioning of endocrine glands.
4. Learners will be able to understand the process of sex determination.

ACTIVITY: 1

Brainstorming activity - Students will be asked questions in order to introduce the term endocrine glands.

- Students will design an advertisement with a catchy slogan on the topic "Save the girl child".

LESSON DEVELOPMENT

❖ Reproductive Phase of Life in Humans

The ability of production of gametes in humans lasts until a certain time period only. This time period varies between males and females.

Reproductive Phase in Females

- It begins from the age of 10 to 12 years and lasts until the age of 45 to 50 years.
- When females hit puberty, the eggs or ova start getting mature.
- One of the ovaries then releases the mature ovum around 28 to 30 days.
- The wall of the uterus at this time, when the egg is released, becomes thick to hold the egg in case if fertilization occurs and the egg develops.
- When the fertilization does not take place, the lining of the uterus sheds along with the egg and the blood vessels.
- This results in **menstruation** or bleeding in females.
- The first menstrual flow occurs at puberty and is called the **Menarche**.
- When the menstrual flow stops, it is termed as **Menopause**.
- The whole menstrual cycle occurs because of female hormones.

Watch the video: <https://www.youtube.com/watch?v=llngkUwD3tE>

❖ Determining the Sex of the Baby

- We know that there are 23 pairs of **chromosomes** present inside the nucleus of every human cell.
- These chromosomes have a thread-like structure and they always occur in pairs.
- The chromosomes help in determining the sex of the child.
- Out of the 23 pairs of chromosomes, 2 of them are sex **chromosomes called X and Y**.
- Females have two X chromosomes and males have one X and one Y chromosome.

- The gametes contain only one set of chromosomes that is either an X or a Y.
- The egg of the female contains an X chromosome always.
- However, the sperm can contain only one of the X and Y chromosomes.
- So if the sperm that contains a Y chromosome fertilizes with the egg which contains the X chromosome, the zygote develops into a **male**.
- On the other hand, if the sperm contains an X chromosome and fertilizers with the egg which contains X chromosome, the zygote develops into a **female**.
- Hence the sex of the child depends upon the chromosomes of the father and not the mother.

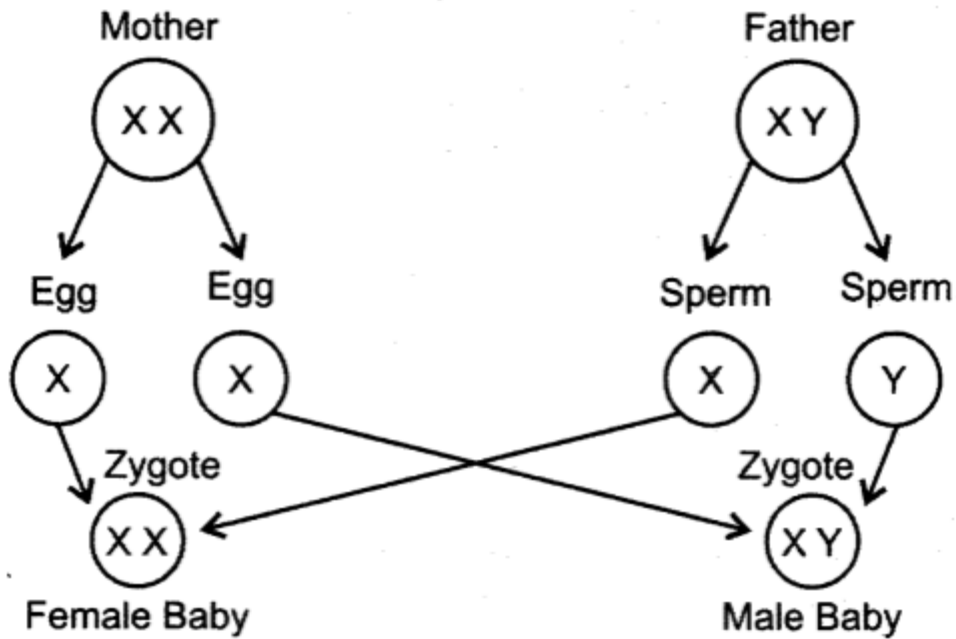


Figure 5: Determination of Sex in Humans

Watch the video: <https://www.youtube.com/watch?v=AzkXQBzZEIE>

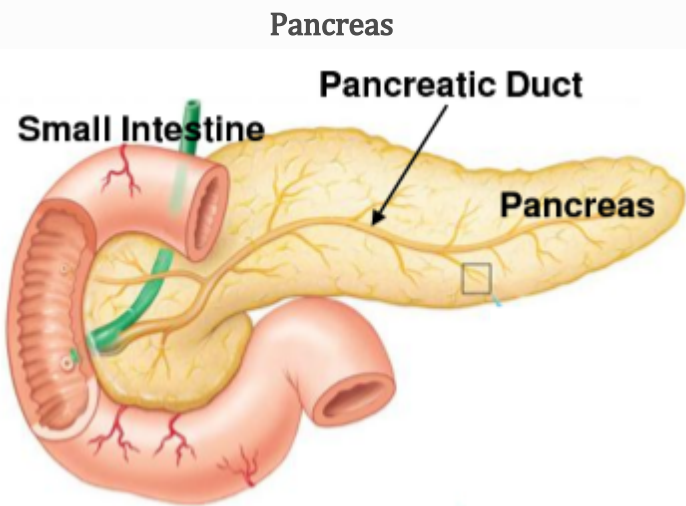
❖ Hormones other than Sex Hormones

Other endocrine glands that are present in the human body are:

Glands	Hormones	Location and Function
Thyroid	Thyroxine	It is found at the front of the neck, between the windpipes. It has a brownish-red color and secretes a collection of hormones called Thyroid Hormones. The thyroid hormone controls the rate of metabolism in body.



Lack of Thyroxine results in Goitre



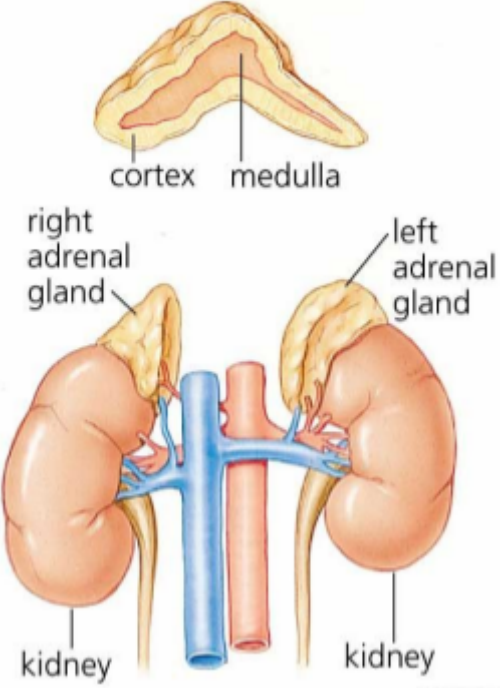
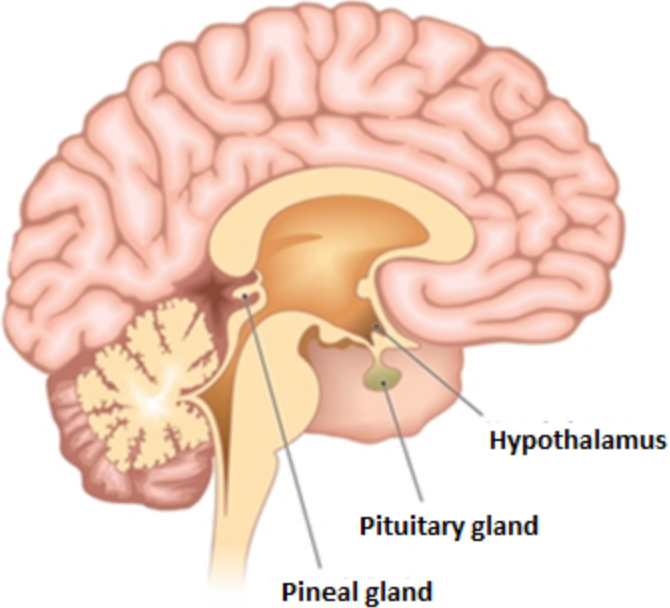
Insulin, Glucagon

- The Pancreas is almost a 6 inch long gland located behind the stomach. It produces digestive enzymes, glucagon and insulin. The insulin maintains glucose level in the blood. The glucagon prevents the insulin levels from getting too low in the body. The insulin activates when the blood glucose levels are high while the glucagon activates when the blood sugar levels are low. Lack of insulin in the body leads to **diabetes**

Adrenal

Adrenaline

Adrenal glands have a size almost of a walnut and are located above the kidneys.

		<p>They secrete more than 150 hormones in the human body for various purposes. Adrenaline helps in managing stress as it increases the blood sugar levels, dilates the pupils, increases the heart rate, enhances the blood supply to the muscles. It also maintains a balance of salt in the blood.</p>
<p style="text-align: center;">Pituitary gland</p> 	<p style="text-align: center;">Growth hormone</p>	<p>The pituitary gland has a size as small as pea and is located inside the skull.</p> <p>It is also called as the master gland as it controls the function of all other glands.</p> <p>The growth hormone is responsible for the growth of a person.</p>

NOW Watch the video : <https://www.youtube.com/watch?v=GM-qP7h59qU>

❖ Role of hormones in completing the life history of insects and frogs

- Insects like silk moths and some animals like frogs undergo the process of **metamorphosis** which results in drastic changes in their bodies.
- The **insect hormones** control the process of metamorphosis in the insects.
- In frogs, **thyroid** releases **thyroxine** which controls the process of metamorphosis in them.

- The thyroxine only produces with the help of **iodine** that is present in the water.
- If there is a lack of iodine in water the tadpoles would never turn into adult frogs.

SUMMARY

- The onset of puberty and maturity of reproductive parts are controlled by hormones.
- Hormones are secretions of endocrine glands which pour them directly into the blood stream.
- Pituitary gland secretes hormones which include growth hormone and hormones that make other glands such as the testes, ovaries, thyroids and adrenals, secrete hormones.
- Pancreas secretes insulin, thyroid produces thyroxine and adrenals produce adrenalin.
- Testosterone is the male hormone and estrogen, the female hormone. They are also called sex hormones.
- The uterine wall in females prepares itself to receive the developing fertilised egg.
- In case there is no fertilisation, the thickened lining of the uterine wall breaks down and goes out of the body along with blood. This is called menstruation.
- Sex of the unborn child depends on whether the zygote has XX or XY chromosomes.
- The **insect hormones** control the process of metamorphosis in the insects.

ASSIGNMENT

Q1. Prepare a Table with two columns depicting names of endocrine glands and hormones secreted by them.

Q2. What are sex hormones? Why are they named so? State their function.

Q3. The mother can not be blamed for giving birth to a baby girl .Justify the statement with the help of an illustration.

Q4. Give reasons for the following:

- Diabetics have to take insulin injections.
- Pituitary gland is also called master gland.
- We must use iodised salt for cooking food.

Q5. The tadpoles in a certain pond failed to grow into adult frogs. What could be the possible reason behind it? Explain.

Q6. MCQ s

A) The belief that the mother is completely responsible for the sex of the child is wrong because the child _____

- gets sex chromosome only from the mother.
- develops in the body of the mother.
- gets one sex chromosome from the mother and the other from the father.
- gets sex chromosome only from the father.

B) Given below are events that lead to pregnancy and development of embryo.

- (i) Fertilization of egg
- (ii) Maturation of egg
- (iii) Release of egg
- (iv) Embedding of embryo in thickened uterine wall.

Which of the following options gives the correct order of sequence in which they occur?

- (a) i, ii, iii, iv,
- (b) ii, i, iii, iv
- (c) i, iv, ii, iii
- (d) ii, iii, i, iv.

C) For the metamorphosis of tadpoles which of the following elements must be available in water?

- (a) chlorine
- (b) carbon
- (c) sulphur
- (d) iodine

Q7. Unscramble the underlined words in the following sentences and rewrite them correctly:

- (a) Reproductive life of a woman lasts from hacreemn to spauoemen.
- (b) The development of a caterpillar to an adult butterfly is termed as poommertaissh.
- (c) The overgrowth of sunselc in xalnyr leads to the hoarse voice in adolescent boys.
- (d) Dannalier helps the body to adjust and fight the stress.

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