Secondary Sexual Characters

A. What are Secondary Sexual Characteristics?

These are physical traits that appear during puberty and distinguish males and females, apart from the reproductive organs.

In Boys:

Growth of facial and body hair

Deepening of the voice

Broader shoulders

Muscular body

In Girls:

Breast development

Widening of hips

Growth of body hair

Start of menstrual cycle

Nature's Example

A male peacock has colorful feathers to attract females — this is a secondary sexual characteristic. A lion's mane is another example.

Role of Hormones

B. What are Hormones?

Hormones are chemical messengers released by endocrine glands into the bloodstream.

They control growth, reproduction, and secondary sexual changes.

The Pituitary Gland

- Known as the "master gland"
- Located in the brain

Controls other glands like:

Testes (in boys): Releases Testosterone

Ovaries (in girls): Releases Estrogen and Progesterone

In Boys:

Testes produce testosterone

Changes caused by testosterone:

- Facial hair growth
- Muscle development
- Deepening voice

In Girls:

Ovaries produce estrogen and progesterone

Changes caused by estrogen:

- Breast development (mammary glands)
- Start of menstrual cycle
- Wider hips

C. Quick Recap Table – Endocrine Glands

Gland	Location	Hormone	Function
Pituitary	Brain	Growth hormone, etc.	Controls other glands; growth
Pancreas	Near stomach	Insulin	Controls blood sugar
Thyroid	Neck	Thyroxine	Controls metabolism
Adrenal	Above kidneys	Adrenaline	Manages stress, raises heart rate
Testes	Male reproductive area	Testosterone	Controls male secondary sexual traits
Ovaries	Female abdomen	Estrogen & Progesterone	Controls female secondary sexual traits & pregnancy

D. Menstrual Cycle in Girls

Begins at puberty (~10–12 years) → Called Menarche

Happens every 28–30 days

Stops around 45–50 years → Called Menopause

If no fertilization occurs, the uterine lining sheds, causing menstruation

E. Sex Determination in Humans

Each human cell has 23 pairs (46) of chromosomes.

One pair decides the sex:

- XX = Female
- XY = Male

Egg from Mother	Sperm from Father	Baby's Sex
X	X	Girl (XX)
X	Y	Boy (XY)

So, the father's sperm determines the baby's sex.