Describe the structure and function of the male and female human reproductive systems. Include: role of hormones
Human Reproduction...

Puberty:
- Stage of life when humans develop **SECONDARY SEXUAL CHARACTERISTICS** and become **SEXUALLY MATURE**
- Time of **PHYSICAL** and **MENTAL DEVELOPMENT**.
- The differences in development of males and females is caused by **GENETICS** and **HORMONES**.
Human Reproduction...

HORMONES are CHEMICAL MESSAGES that travel through the BLOOD, relayed by the PITUITARY GLAND (part of the BRAIN).

A common hormone is ADRENALINE.

• When you get a “SCARE”, ADRENALINE is released from GLANDS near your KIDNEYS into your blood.
• It causes increased HEART RATE and BREATHING, tense MUSCLES, and “SICK” stomach (“butterflies”).

HORMONES

HORMONES EVERYWHERE
Human Reproduction...

Sex Hormones:

- **ESTROGEN** (females) and **TESTOSTERONE** (males) target the reproductive system when released from the **OVARIES** or **TESTES**.
- Controls the development of **PRIMARY** and **SECONDARY** sexual characteristics.

**Effects of Estrogen**

- Brain: helps to maintain the body temperature, helps against memory loss

- Heart and Liver: regulates production of cholesterol (decreases the build-up of plaque in the coronary arteries)

- Ovary: stimulates the maturation, stimulates the start of a woman's menstrual cycle

- Vagina: stimulates the maturation, helps maintain a lubricated and thick vaginal lining

- Breast: stimulates the development at puberty, prepares the glands for future milk production

- Uterus: stimulates the maturation, helps to prepare the uterus to nourish a developing fetus

- Bones: helps to preserve bone density

**TARGET ORGANS OF TESTOSTERONE**

- **Skin**: hair growth, balding, sebum production

- **Liver**: synthesis of serum proteins

- **Brain**: libido, mood

- **Muscle**: increase in strength and volume

- **Kidney**: stimulation of erythropoietin production

- **Male Sexual Organs**: penile growth, spermatogenesis, prostate growth and function

- **Bone**: accelerated linear growth, closure of epiphyses

- **Bone Marrow**: stimulation of stem cells
Human Reproduction...

Primary Sexual Characteristics:
• Are **DIRECTLY** involved in **SEXUAL REPRODUCTION** (PENIS, UTERIS).
• Are essential to produce **GAMETES** (sex cells) and development of **OFFSPRING**.

Secondary Sexual Characteristics:
• Develop as a result of **SEX HORMONES**.
• Are **NOT DIRECTLY** involved with **REPRODUCTION** (BEARDS, BREASTS, PUBIC HAIR, etc.)
• Signal sexual **MATURATION**, and **ATTRACT** the opposite sex.
Puberty in Males...

• Occurs between the ages of **10 – 14**

• Male sex hormone **TESTOSTERONE** is mass produced and secreted by the **TESTES** after stimulation by the **PITUITARY GLAND**.

• Increased interest in **SEX**

• **VOICE** changes (**DEEPENS**)  

• **PENIS** increases in **SIZE**

• **HAIR** growth on **FACE, ARMPITS,** and **PUBIC** area

• Increase in **HEIGHT** and **MUSCLE MASS**
Puberty in Females...

- Occurs between the ages of **8 – 13**

- Female sex hormone **ESTROGEN** secreted by the **OVARIES** after receiving a message from the **PITUITARY GLAND**.

- **BREASTS** develop

- Body **FAT REDISTRIBUTES**, resulting in rounded **HIPS** and **THIGHS**

- Hips **WIDEN**, **HEIGHT** increases

- **HAIR** growth in **ARMPITS** and **PUBIC AREA**

- **MENSTRUATION** begins
The Male Reproductive System...

Testes
- Produce **SPERM** and male **SEX HORMONES**.

Epididymis
- A **LONG COILED TUBE** that is found over the **TESTES**.
- **WHERE** sperm **MATURE**, and are **STORED** for up to 6 weeks.

Vas Deferens
- **TUBE** that carries sperm from **EPIDIDYMIS** to the **URETHRA**

Glands
- **PROSTATE GLAND, COWPER’S GLAND,** and **SEMINAL VESICLE** add fluids to the sperm.
- Fluids stimulate sperm to **SWIM, NOURISH** the sperm, and provide a **SAFE ENVIRONMENT** for the sperm.
- The resulting fluid is called **SEMEN**.

Scrotum
- A **SAC** containing the **TESTES**, found **OUTSIDE** the body of males.
The Male Reproductive System
Side View
The Male Reproductive System
Front View
The Female Reproductive System...

Ovaries
- Produce **EGGS (OVA)** through **MEIOSIS**.

Uterus
- The thick **MUSCULAR, PEAR-SHAPED** organ where the **EMBRYO DEVELOPS**.

Cervix
- The narrow **NECK** of the **UTERUS** leading into the **VAGINA**.

Vagina
- The structure leading from the **CERVIX** to the **OUTSIDE** of the body.

Fallopian Tubes
- **TUBE** connecting the **OVARY** to the **UTERUS**.
The Female Reproductive System
Front View