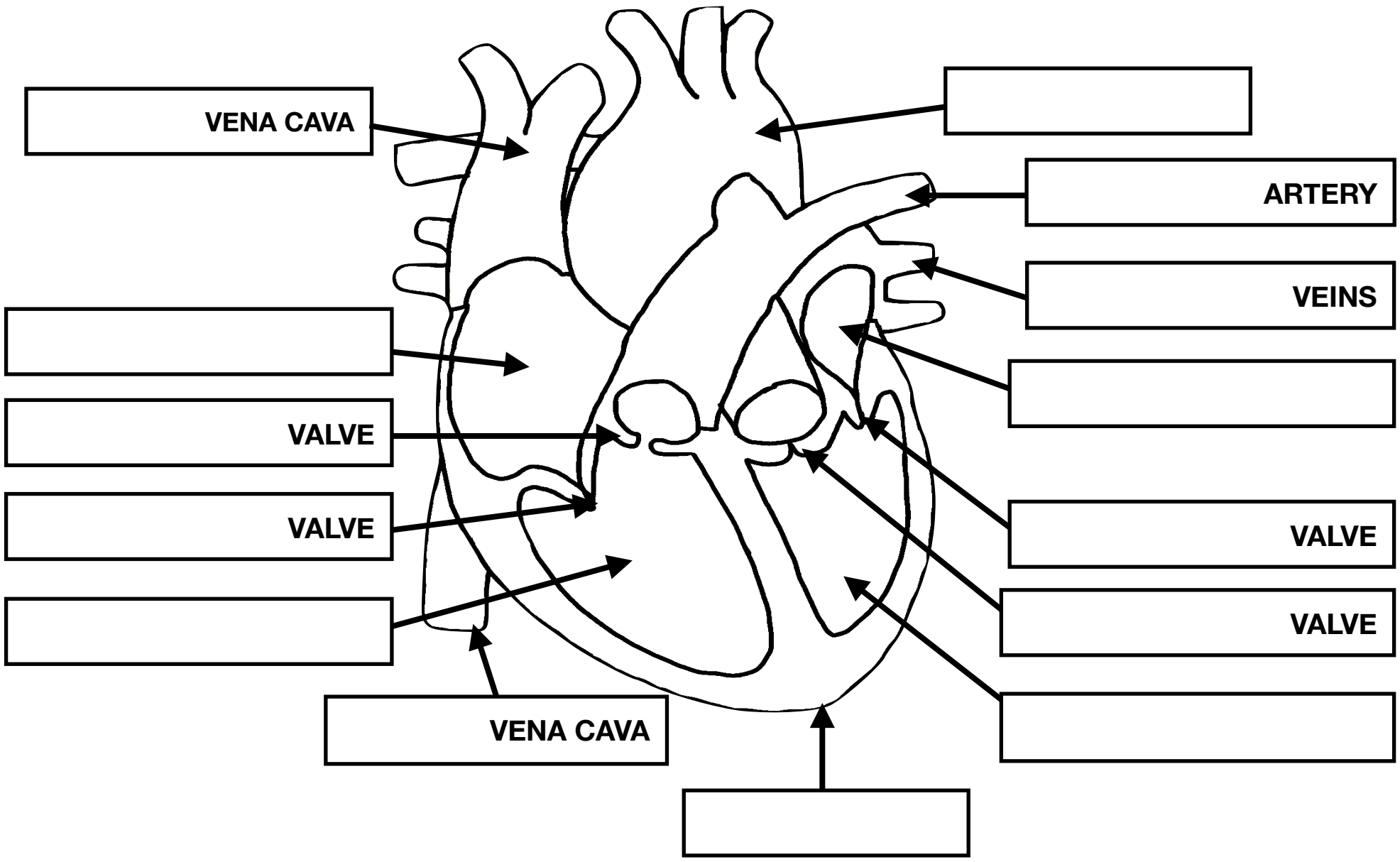
CARDIOVASCULAR SYSTEM



The **Cardiovascular System** includes the _____, _____, and _____.

The main function of the Cardiovascular System is to transport substances, nutrients and _____ to tissues and cells all over the body.

Atrium = Blood goes _____ heart.
Ventricles = Blood goes _____heart.

The **three layers** of the heart are:

_____= outermost layer _____ = middle layer _____= innermost layer

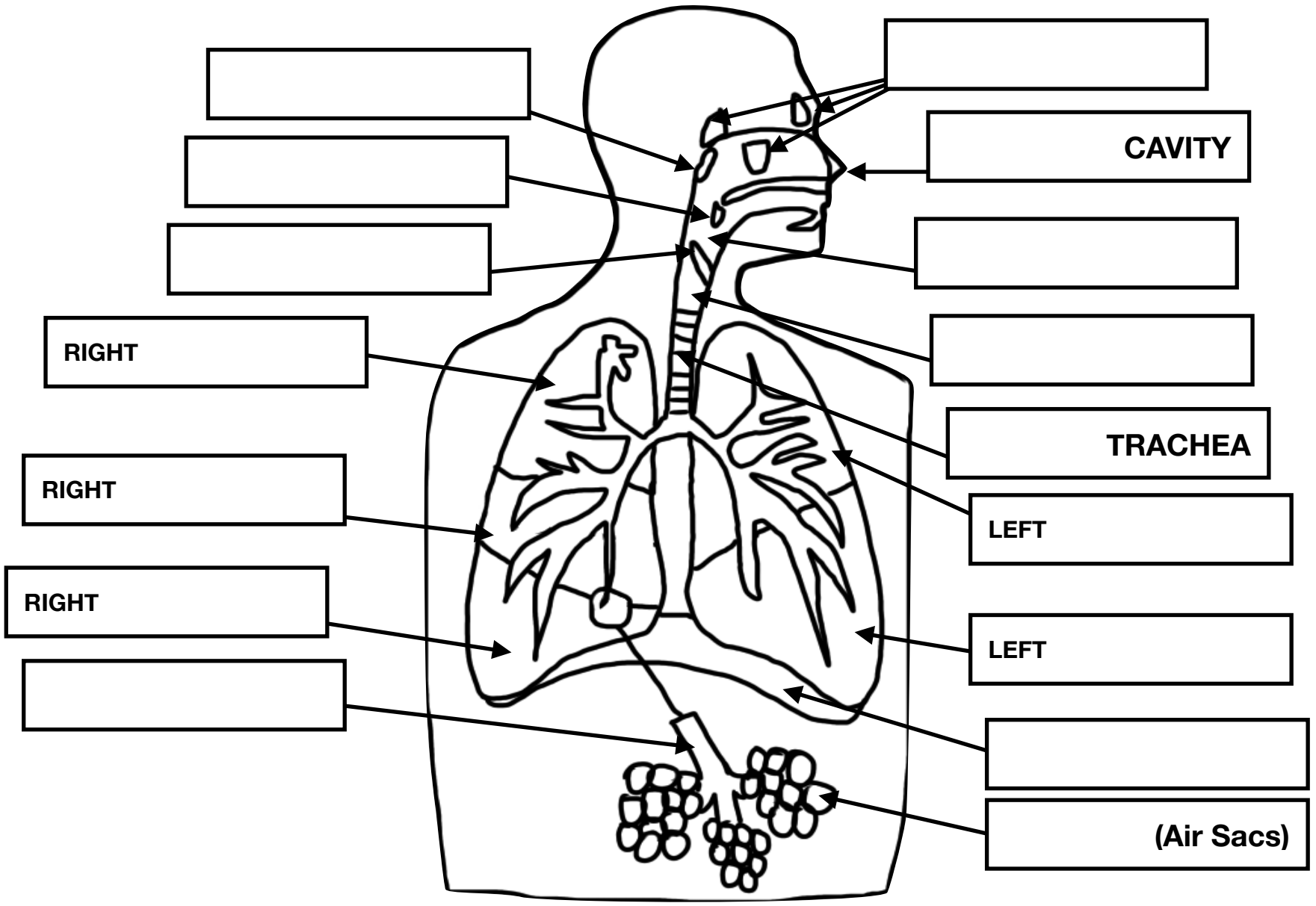
Tricuspid "Triangle" = the right AV valve with _____ flaps.
Bicuspid "BI=2" = the left AV valve with _____flaps.

Contraction of the heart is called _____ meanwhile **relaxation** of the heart is called _____.

The **first heart sound** "LUB" in the cardiac cycle is caused by a closing of the _____ valves. The **second heart sound** "DUB" is due to closing of the _____ valves.

Normal Pulse: 60-100**, Normal BP:** 120/80

RESPIRATORY SYSTEM



The **Respiratory System** includes the lungs, pharynx, larynx, trachea, large airways (bronchi), small airways (bronchioles), nose and mouth.

The _____ is also referred to as the voice box.
The _____ is also referred to as "Throat" that is a passageway for food and air.
The _____ is called "The Protector of the Airways" since it closes to stop food from entering the airway.

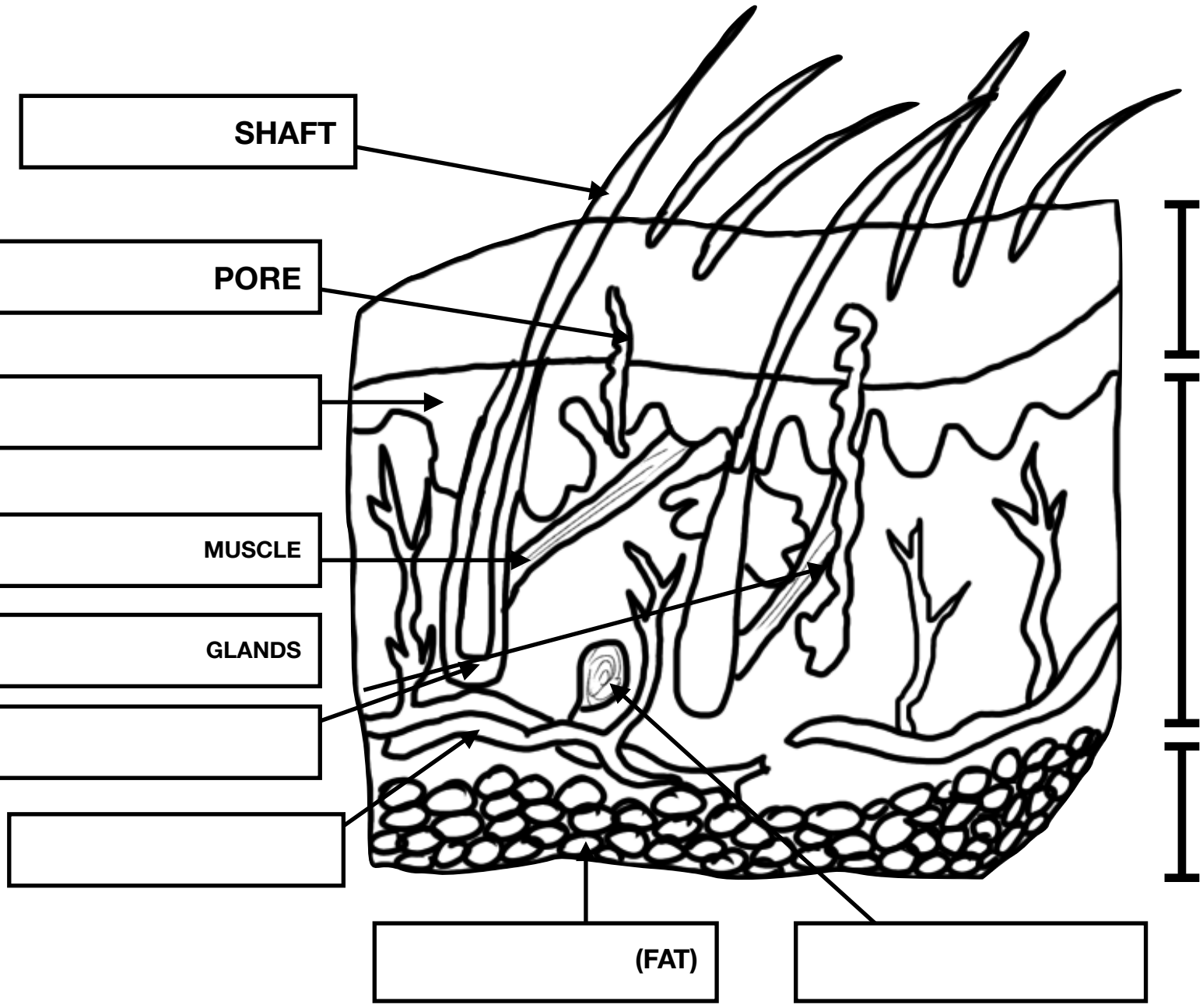
There are _____ lobes on the right side of the lung vs. _____ lobes on the left side of the lungs.

One of the main functions of the Respiratory is gas exchange (CO_2/O_2). In **external respiration**, gas exchange between _____ and _____ take place in order to load oxygen and unload carbon dioxide. In **internal respiration**, gas exchange between _____ and _____ are made in order to unload oxygen and load carbon dioxide.

Inspiration: air flowing _____ lungs.
Expiration: air flowing _____ lungs.

Normal Respiratory Rate: 12-20.

INTEGUMENTARY SYSTEM



The **Integumentary System** includes: Skin, _____glands, _____glands, _____, and _____.

The **main functions** of the Integumentary System are to protect tissues, _____regulation, elimination, synthesize Vitamin ____, and sensation.

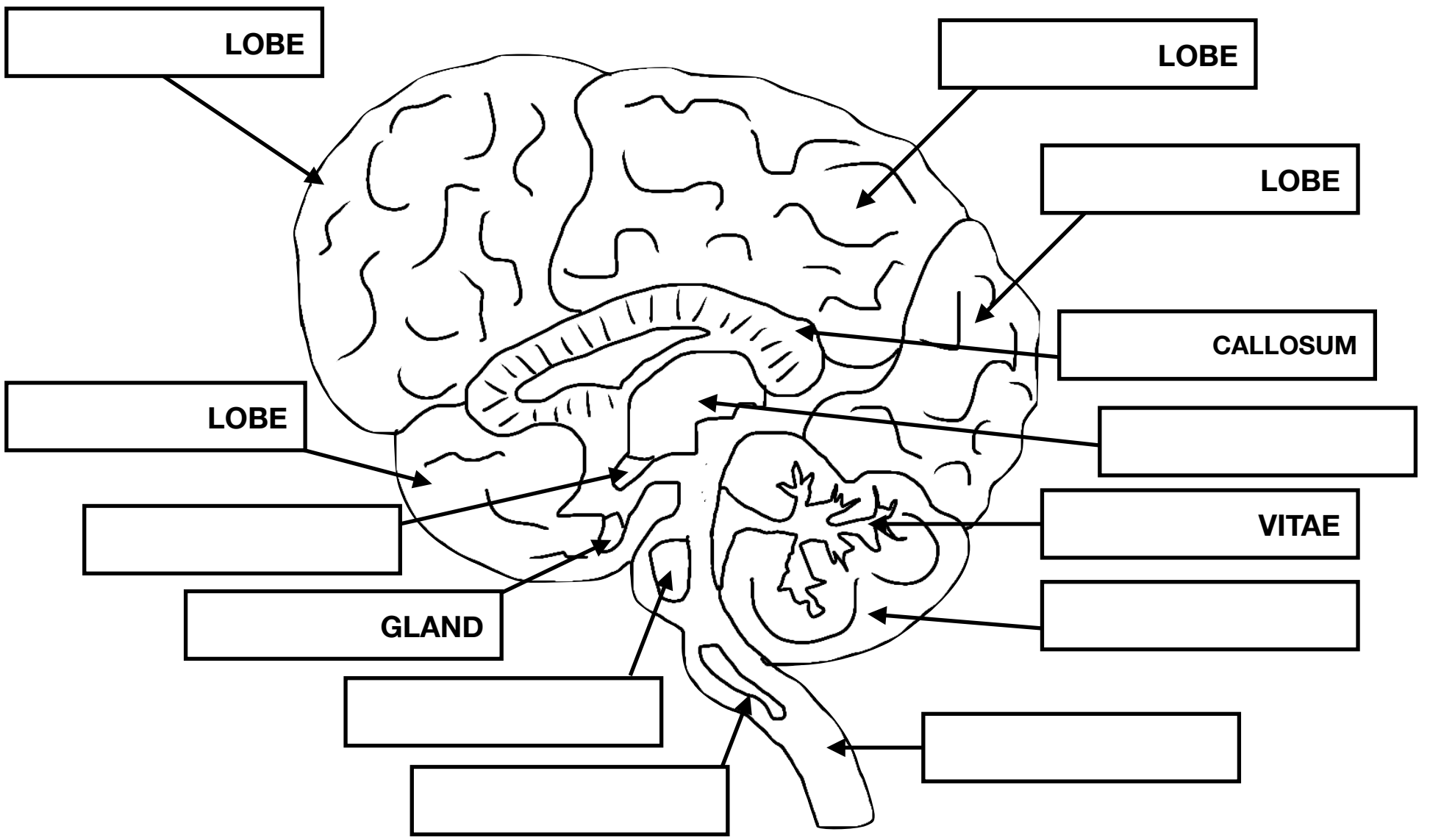
The L**ayers of the Epidermis** can be remembered "Come Let's Get Sun Burned"

Stratum C_____
Stratum L_____
Stratum G_____
Stratum S_____
Stratum B_____

The _____layer of the skin is found on the to**p layer** of the dermis, and the _____ layer is found towards the **bottom layer** of the dermis and include blood vessels, sweat/oil glands, and pressure sensors.

Most of the epidermis is made of _____ (keratin cells) and pigmenting of the skin is made of _____.

NERVOUS SYSTEM



The **Nervous System** is made up of: the brain, _____cord, and _____.

The Nervous System is **split** in the Central _____ and Peripheral Nervous System.

The Peripheral Nervous System is also split into the Somatic Nervous System and _____Nervous System. The Autonomic Nervous System has the _____ Division "**Fight or Flight**" and _____ Division "**Rest and Digest**".

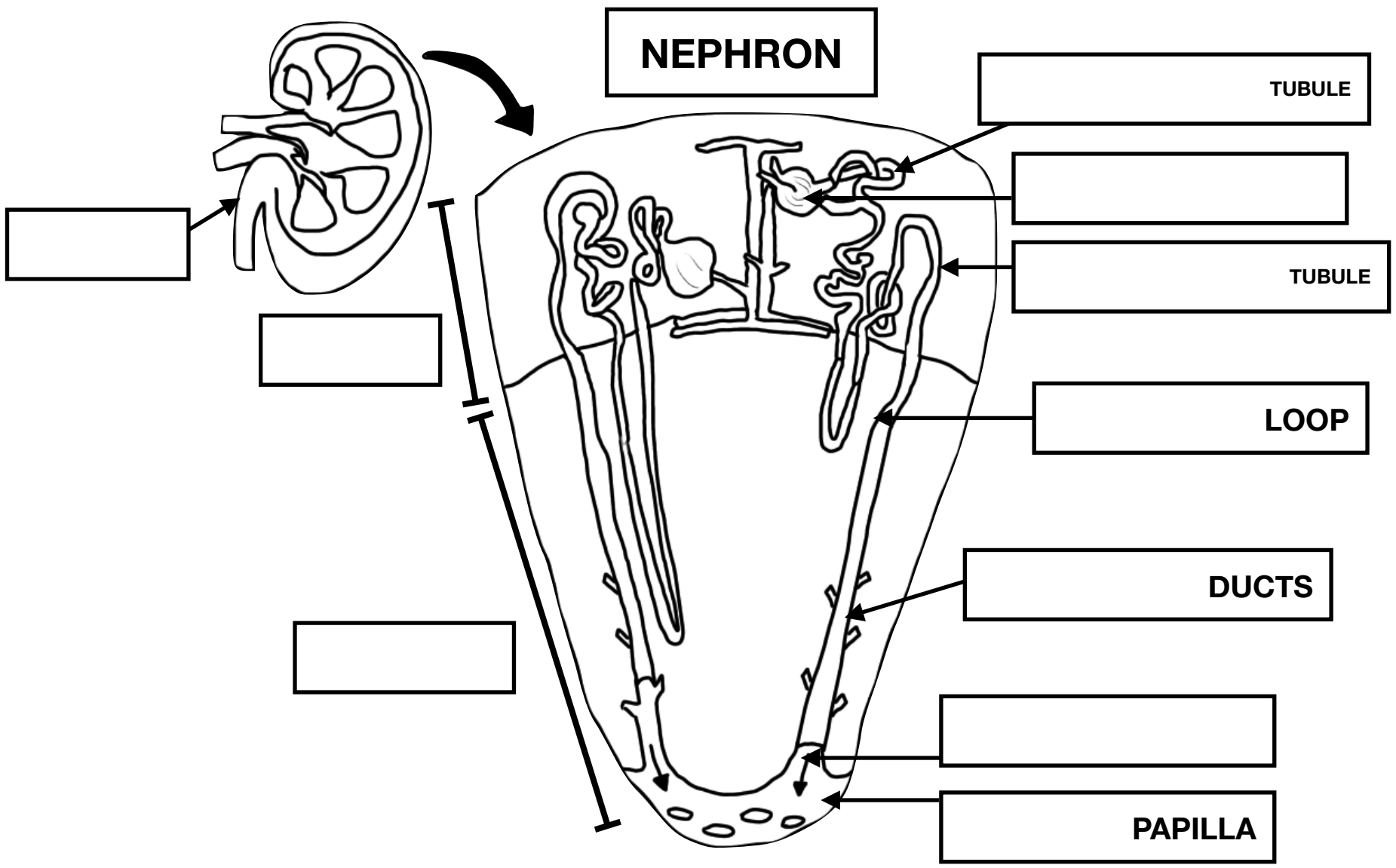
The **left side** of the brain is associated with _____.

The **right side** of the brain is associated with _____.

The function of the _____ lobe of the brain is vision.
The function of the _____lobe of the brain is language, sensation, and perception.
The function of the _____lobe of the brain is speech, personality, and judgement.
The function of the _____lobe of the brain is memory and hearing.

Balance and coordination are controlled by the _____ and autonomic functions like HR, BP, Temp, Breathing are controlled by the _____.

URINARY SYSTEM



The **Urinary System** is made up of the Urinary _____, Ureter, Renal _____, Kidney, and Urethra.

The **main functions** of the Urinary System are to
_____.

The _____ are responsible for **filtering gallons of fluid** from the bloodstream.
A _____ is the structural and **functional unit of the kidneys.**

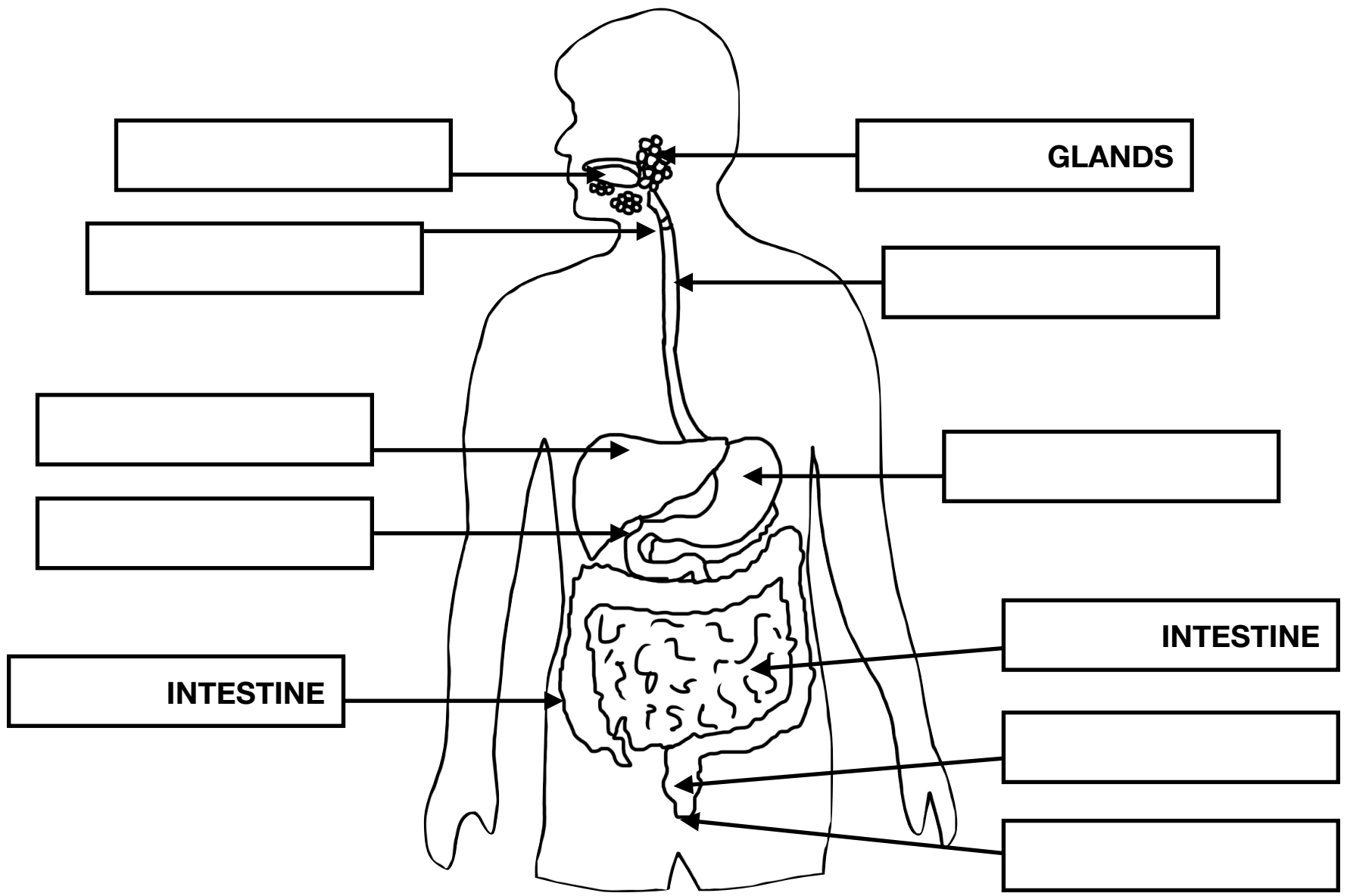
The _____ play an important role in transporting urine from the kidneys to the bladder while the _____ carries urine from the bladder to the outside of the body (toilet).

A different word for **voiding** or urinating is _____.

Urine is formed by **three processes**:
_____: water and solutes are forced through walls of glomerular capsule into renal tubule.
_____: water, glucose, amino acids, and ions transported out of filtrate, into tubule cells and then capillary blood.
_____: hydrogen, potassium, creating, drugs removed by blood and secreted by tubule cells.

Urine Specific Gravity: 1.001-1.035

DIGESTIVE SYSTEM



The **Digestive System** includes the mouth, _____ glands, pharynx, _____, pancreas, esophagus, liver, _____, small and large intestine, and anus.

There are **six main functions** of the digestive system:

_____: voluntary process of eating and bringing foods into the digestive system.

_____: foods are processed and propelled from one organ to the next through peristalsis (waves of contraction/relaxation of muscles). *Ex: Swallowing*

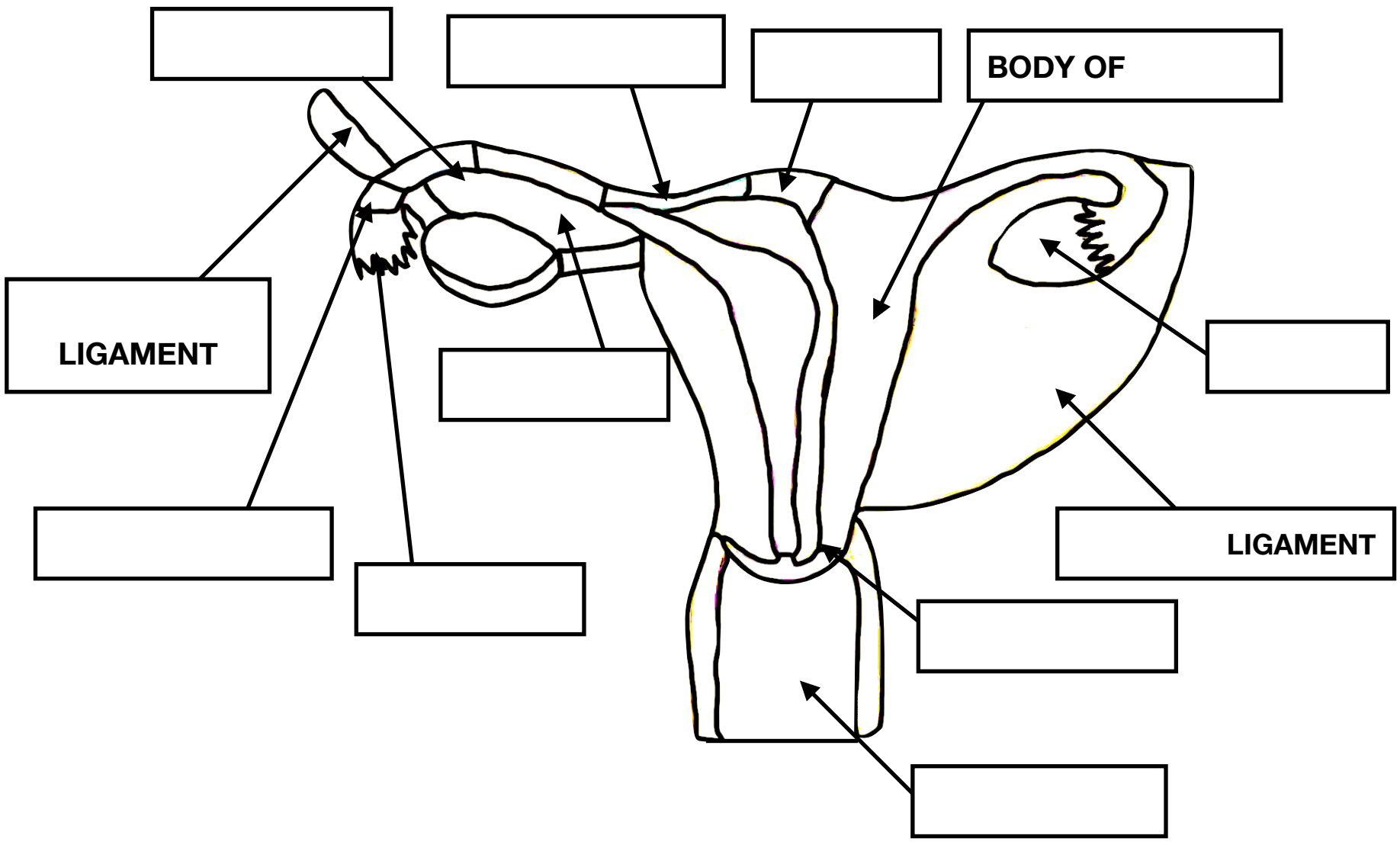
_____: foods are broken technically by the tongue, churning of stomach, and segmenting in small intestine.

_____: foods are broken down by enzymes.

_____: digested food is absorbed into the intestinal lining of the bloodstream or lymph.

_____: elimination of waste in the form of feces.

FEMALE REPRODUCTIVE



The **Female Reproductive System** is used to reproduce offspring.

The **egg cells** with hormones are also called_____.

The ovaries are transported by the _____to the uterus. The fimbria propels ovums into the fallopian tube.

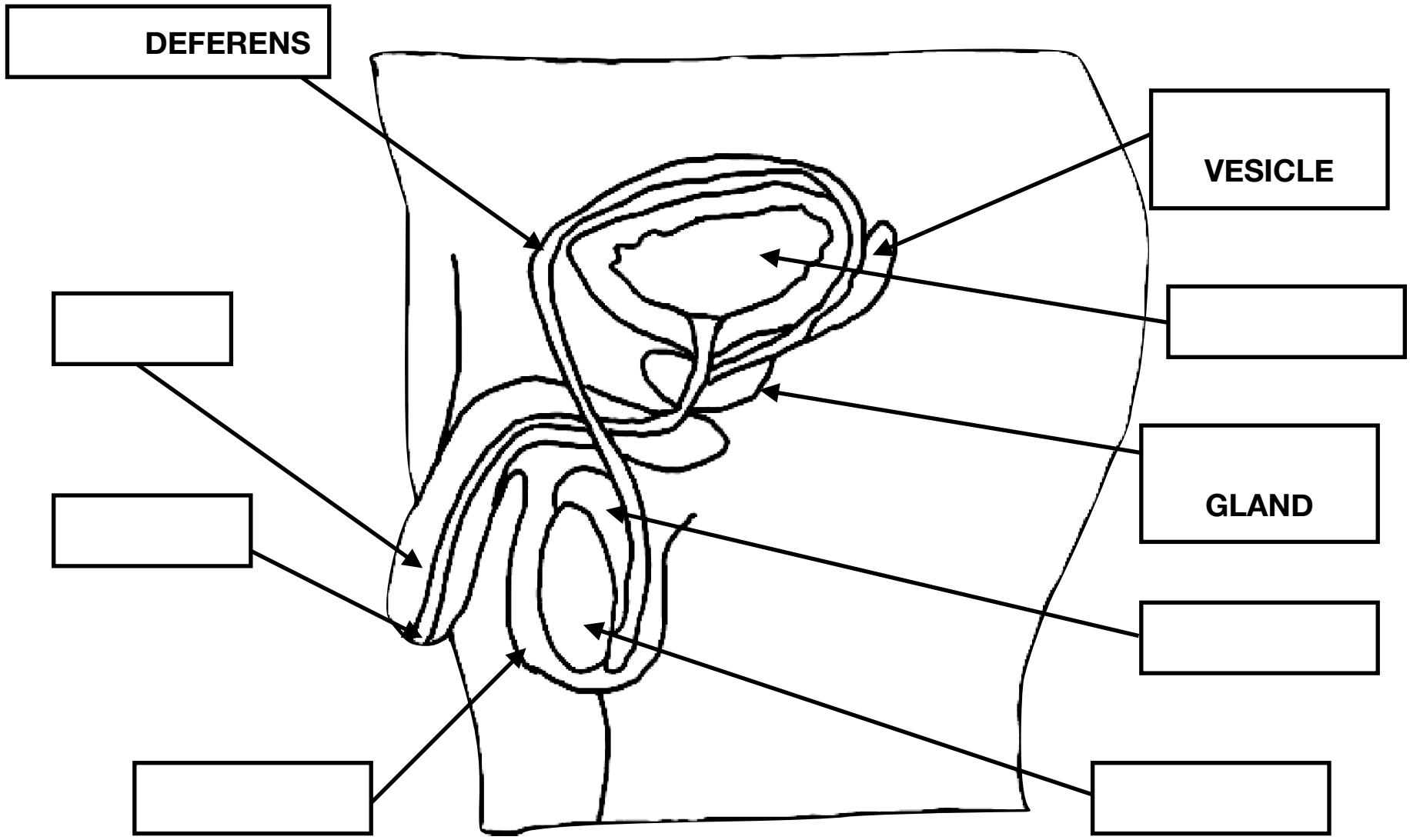
The **uterus** is the primary place for implantation and nourishment of a growing fetus. It can be divided into the _____, _____, and _____ (opening).

The main **female sex hormone** of _____ stimulates the release of follicle stimulating hormone and luteinizing hormone (love hormone) used in growth and reproductive development.

The other main **female sex hormone** of _____is produced during the second half of the menstrual cycle and thickens the lining of the endometrium to prepare for a fertilized egg.

Periods of Pregnancy: Germinal Period (0-2 wks), Embryonic (3-8 wks), Fetal Period (9 wks-Birth)

MALE REPRODUCTIVE



The **Male Reproductive System** is used to reproduce offspring.

The **male reproductive cell** is called _____.

The tightly coiled tube responsible for **transporting** sperm from the tubule to vas deferens is called _____.

The seminal vesicles secrete a _____ with proteins, sugar, and prostaglandins that makes the sperm **motile**.

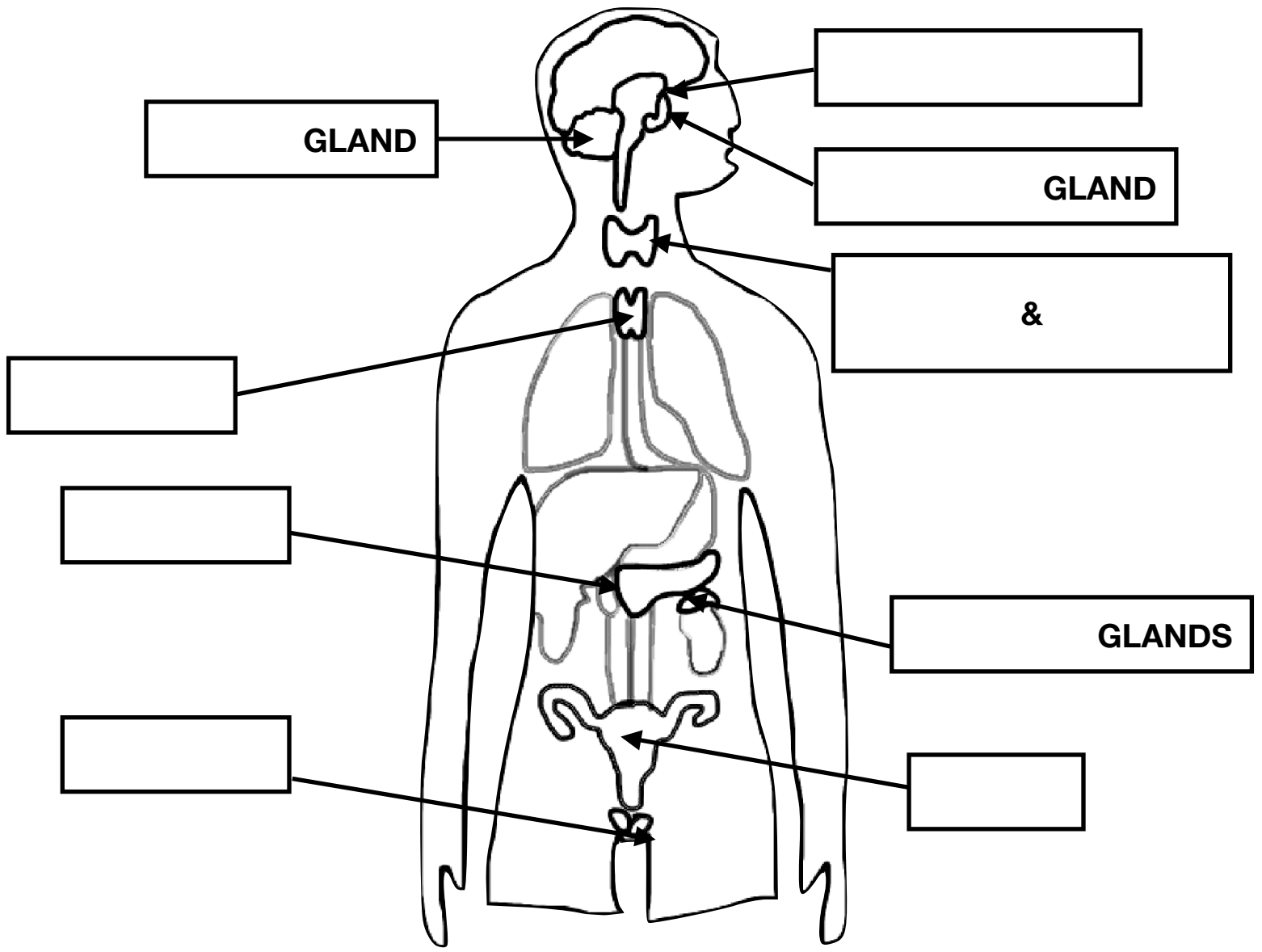
The _____gland also secretes alkaline fluid that **protects sperm** from being damaged by the low pH level found in the urethra.

A majority of semen is produced by the _____gland and the rest is produced by the seminal vesicles, epididymis, and bulbourethral glands.

The _____ regulates the **temperature** of sperm.

The male sex hormone of testosterone and sperm is produced by the _____.

ENDOCRINE SYSTEM



The **Endocrine System** is used to produce _____ that regulate homeostasis of the body.

The main **functions** of the Endocrine System include water _____, blood pressure management, blood _____ regulation, tissue growth, reproductive function, and protein metabolism.

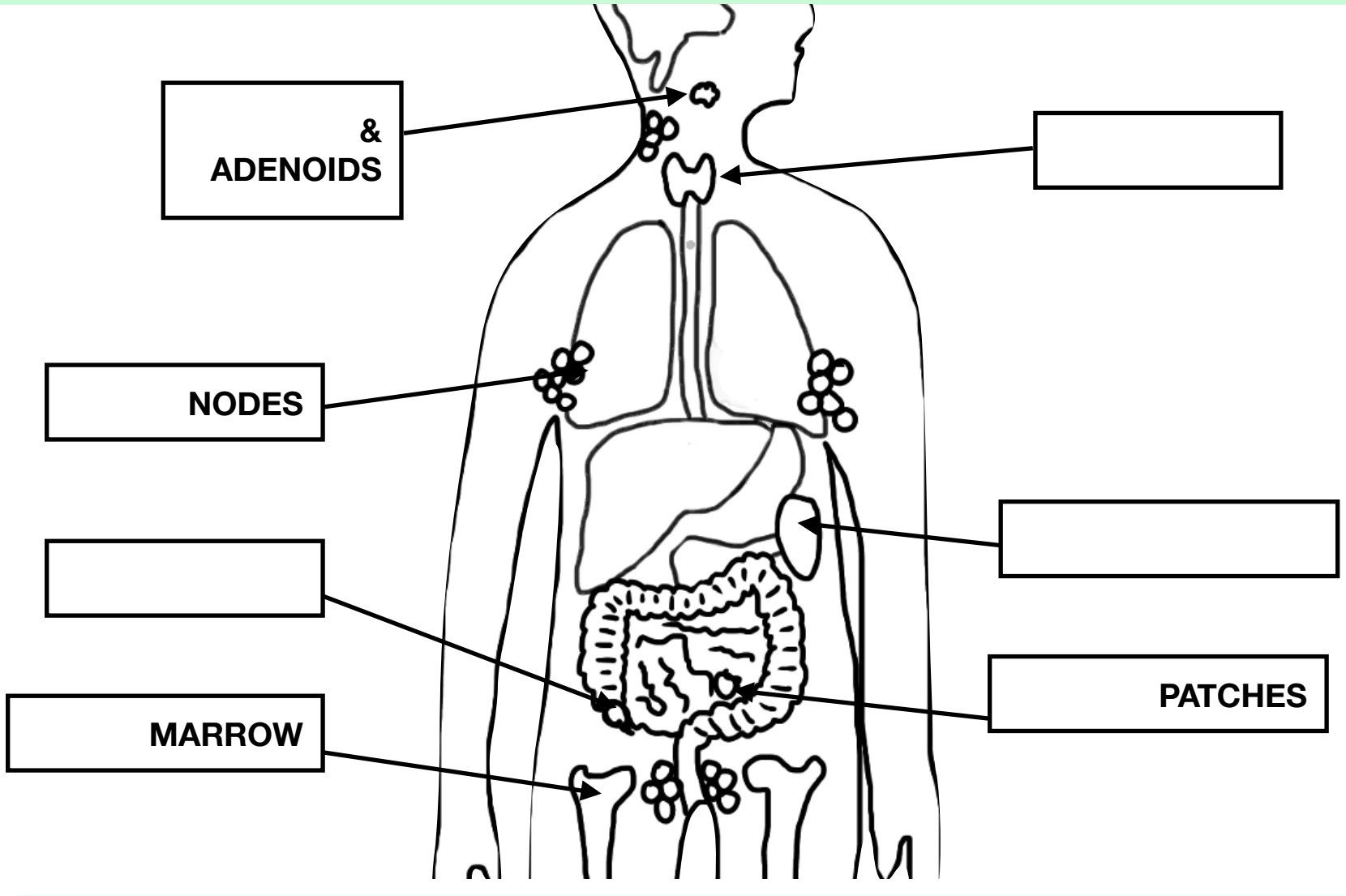
The **organs** included in the endocrine system are the: hypothalamus, pituitary _____, thyroid, parathyroid, _____gland, adrenal cortex, adrenal _____ and pancreas islets.

The **hormones** of the anterior pituitary include: growth hormone, prolactin, ACTH, TSH, gonadotropic hormone, FSH, and LH hormone. The posterior pituitary hormones are Oxytocin and _____.

Melatonin, the **sleep** hormone, is produced by the _____ gland.

The hormone _____ raises **blood calcium** vs the hormone _____ lowers blood calcium.

LYMPHATIC SYSTEM



The **Lymphatic System** is used to the protect the body from pathogens, absorb _____, and balance fluid levels.

The **organs** included in the Lymphatic System include the: tonsils, spleen, appendix, red bone marrow, lymph nodes, thymus gland, Peyer's patches.

_____ is the name of a drainage system that picks up excess tissue fluid.

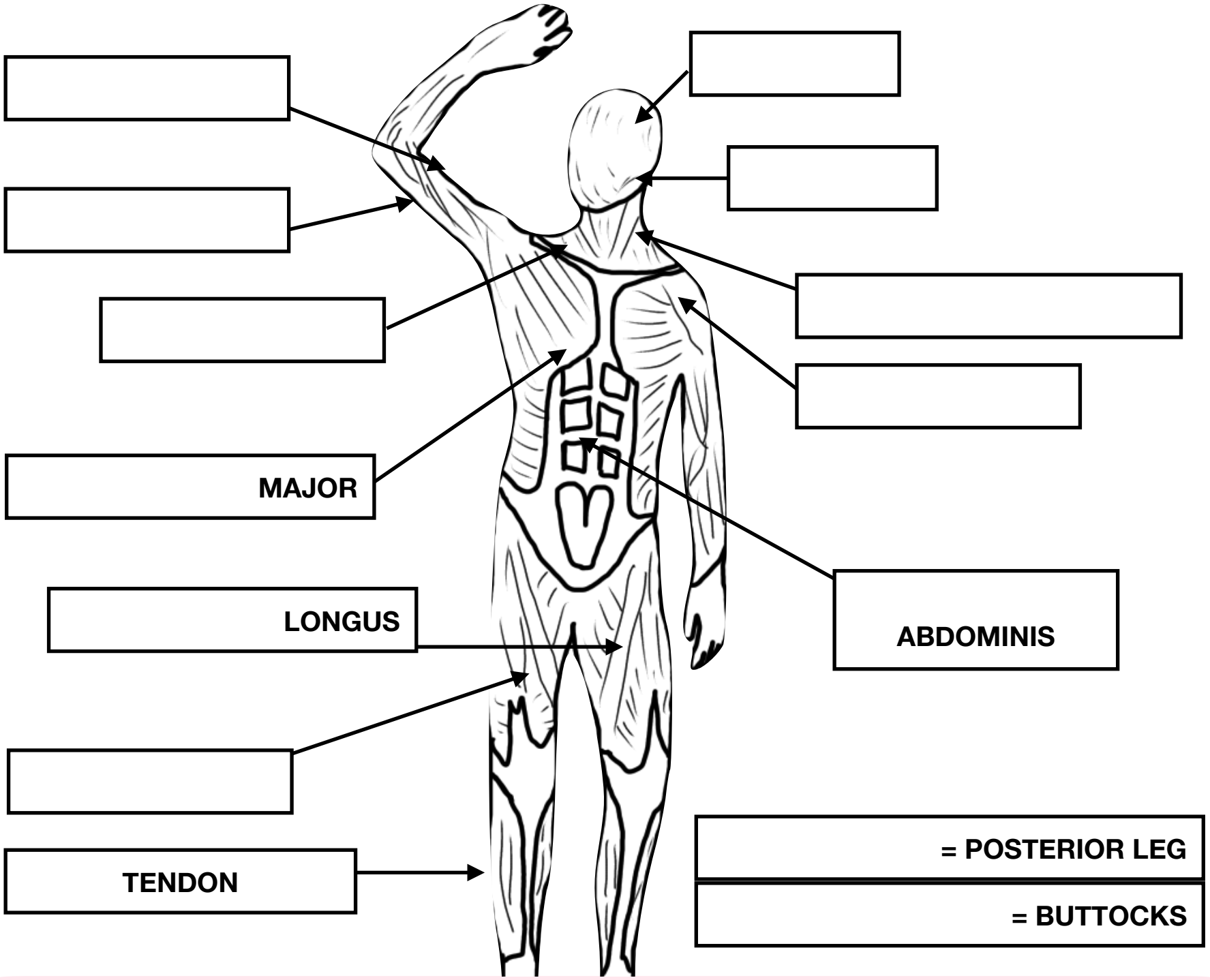
The Thymus produces **T cells** that watch and _____ pathogens while B **cells** from Red Bone Marrow provide _____to prevent future attacks.

The largest organ of the body that provides e**xternal protection** is the _____. Other mechanisms of external defense are mucous membranes, skin secretions, and cilia in the nasal cavity.

Internal defenses system include _____ that **eat bacteria**, the **inflammatory response** (heat, redness, swelling, _____), and antimicrobial proteins.

A virus, bacteria, fungi, pollen, toxin is a type of _____, and an _____ is used to bind to an antigen to reduce or stop its progression.

MUSCULAR SYSTEM



The **Muscular System** is made up of skeletal, cardiac, and smooth muscle.

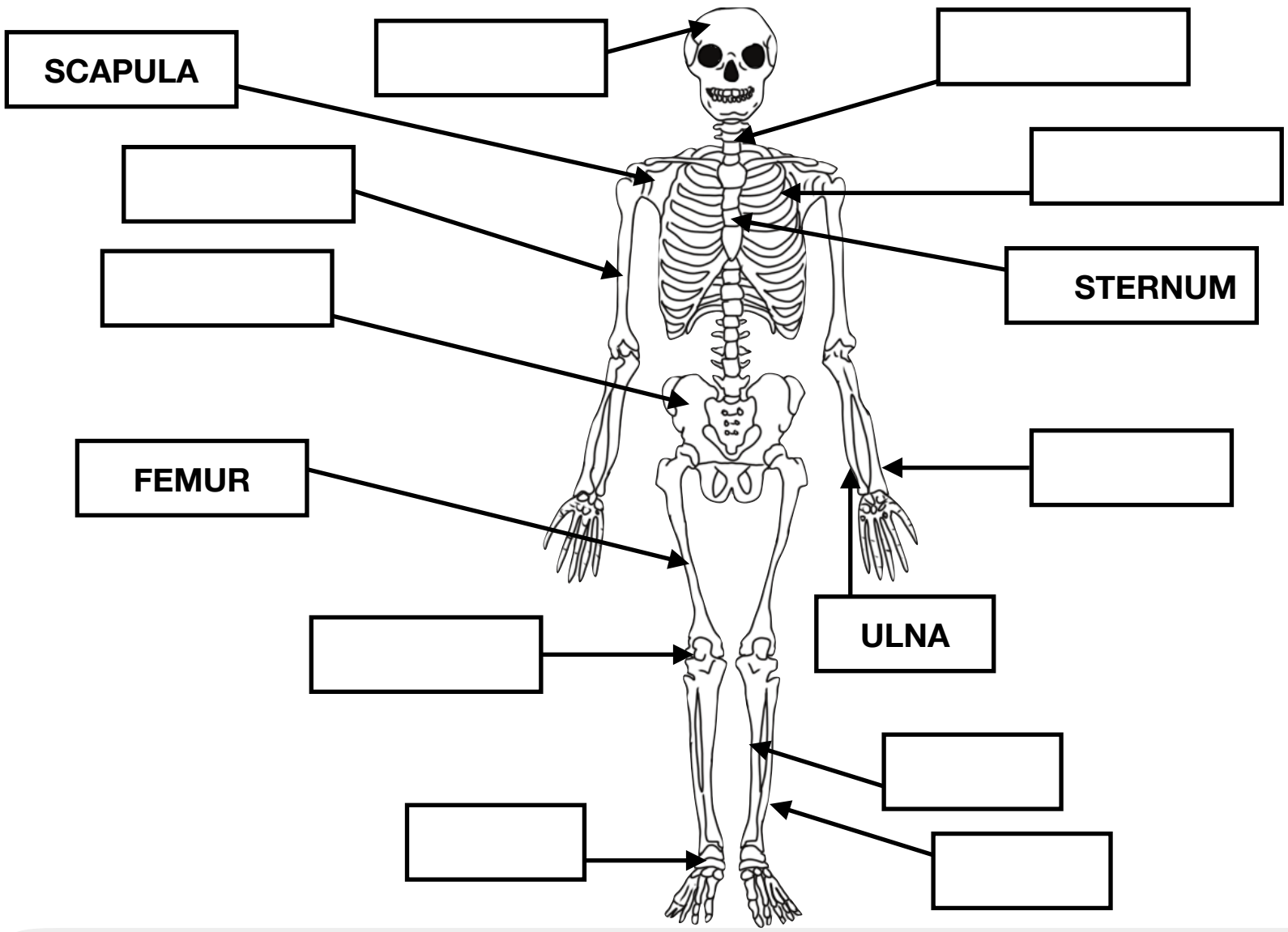
The **functions** of the muscular system are to produce _____, maintain posture, stabilize _____, and generate _____.

The **outer layer** of muscle is called the _____, **middle layer** is the perimysium, and the **inner layer** is called the endomysium.

_____: a movement that decreases the angle of a joint. "Coming Together"
_____: a movement that increases the angle of a joint. "Distancing Apart"
_____: moving a limb away from the middle of the body.
_____: moving a limb towards the middle of the body.
_____: movement of a bone around a longitudinal axis.
_____: moving the foot laterally _____: moving the foot inward (invert)
_____: palms facing up (anterior) _____: palms facing down (posterior)

Smooth Muscle is _____, **Cardiac** Muscle is _____, **Skeletal** Muscle is voluntary.

SKELETAL SYSTEM



The **Skeletal System** includes the _____, tendons, ligaments, and cartilage.

The **functions** of the skeletal system includes supporting the body, protecting _____, movement, storage of calcium, and blood cell formation.

The Skeletal System is divided into the Axial & Appendicular skeleton. The **Axial Skeleton** include the longitudinal axis of the body bones (ribs, sternum, skull, vertebral column), while the Appendicular Skeleton include the _____ (arm, legs, hips).

The two types of **bone tissue** are: compact and _____bone.

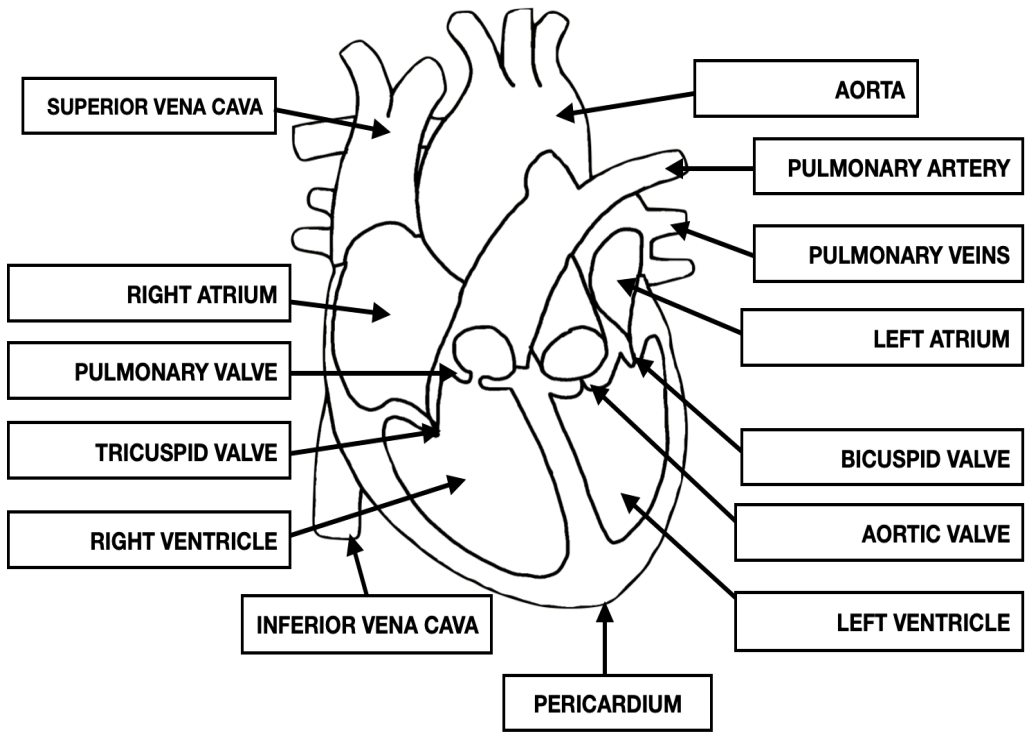
Bones can be classified into **four shapes**: long, short, flat, and irregular.
_____: humerus of arm
_____: sternum
_____: vertebra
_____: carpal of wrist

Mature bone cells are called _____.

The types of **Bone Marrow** are:_____produces red blood cells, and _____is made up of adipose tissue.

ANSWER KEY

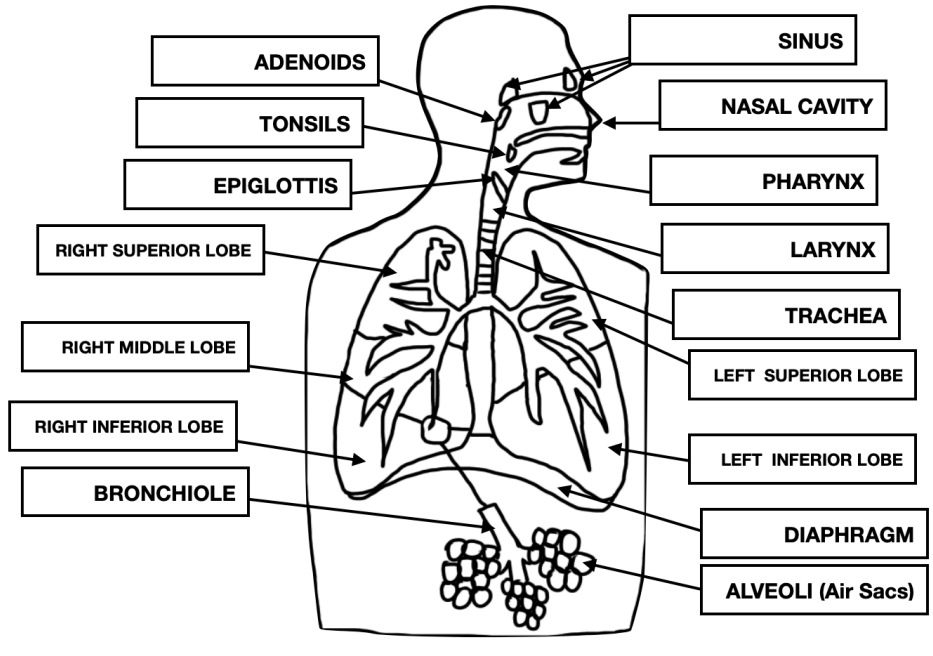
CARDIOVASCULAR SYSTEM



The cardiovascular system includes the **heart**, **blood**, and **blood vessels.** The main function of the Cardiovascular System is to transport substances, nutrients and **OXYGEN** to tissues and cells all over the body. Atrium = blood goes **INTO** heart, Ventricles = blood goes **OUT OF** heart. The three layers of the heart are: **epicardium** (outermost layer), **myocardium** (middle layer), **endocardium** (innermost layer). **Tricuspid** "Triangle" = the right AV valve with **3** flaps.**Bicuspid** "BI=2" = the left AV valve with **2** flaps. Contraction of the heart is called **systole** meanwhile relaxation of the heart is called **diastole**. The first heart sound "LUB" in the cardiac cycle is caused by a closing of the **AV** valves. The second heart sound "DUB" is due to closing of the **SL** valves.

RESPIRATORY SYSTEM

The **Respiratory System** includes the lungs, pharynx (throat), larynx (voice box), trachea, large airways (bronchi), small airways (bronchioles), nose and mouth. The main function of the Respiratory System is to **supply the body with oxygen "O2" and get rid of carbon dioxide "CO2".** The **Larynx** is also referred to as the voice box. The **Pharynx** is also referred to as "Throat" that is a passageway for food and air. The **Epiglottis** is called "The Protector of the Airways" since it closes to stop food from entering the airway. There are **3 lobes** on the right side of the lung vs. **2 lobes** on the left side of the lungs. One of the main functions of the Respiratory is gas exchange (CO2/O2). In external respiration, gas exchange

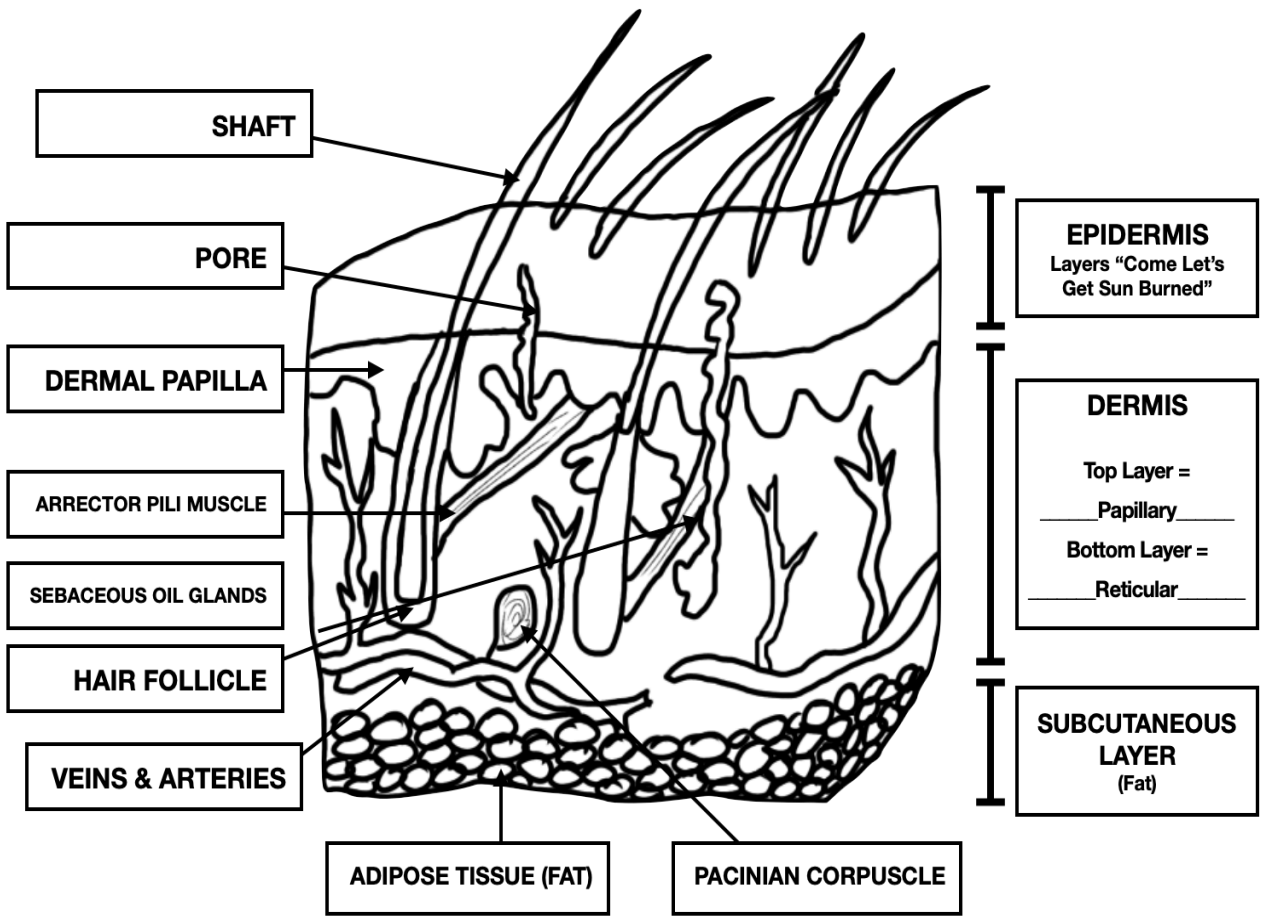


between **blood** and **alveoli** take place in order to load oxygen and unload carbon dioxide. In internal respiration, gas exchange between **blood** and **tissue cells** are made in order to unload oxygen and load carbon dioxide. Inspiration: air flowing **INTO** lungs. Expiration: air flowing **OUT OF** lungs.

INTEGUMENTARY SYSTEM

The Integumentary System includes the **Skin, Sebaceous Glands (oil), Sweat Glands, Hair and Nails.** The main functions of the Integumentary System are to protect tissues, **temperature regulation,** elimination, synthesize Vitamin **D**, and sensation. The Layers of the Skin can be remembered "Come Let's Get Sun Burned"

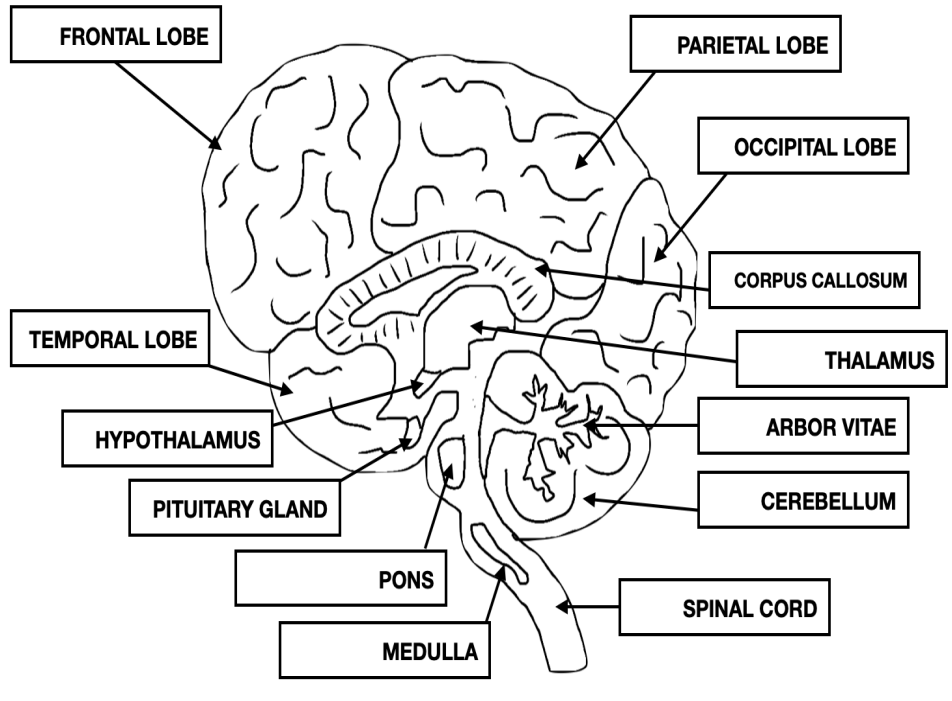
Stratum Corneum
Stratum Lucidum
Stratum Granulosum
Stratum Spinosum
Stratum Basale



The **papillary** layer of the skin is found on the top layer of the dermis, and the **reticular** layer is found towards the bottom of the dermis and include blood vessels, sweat/oil glands, and pressure sensors. Most of the epidermis is made of **keratinocytes** (keratin cells) and pigmenting of the skin is made of **melanocytes**.

NERVOUS SYSTEM

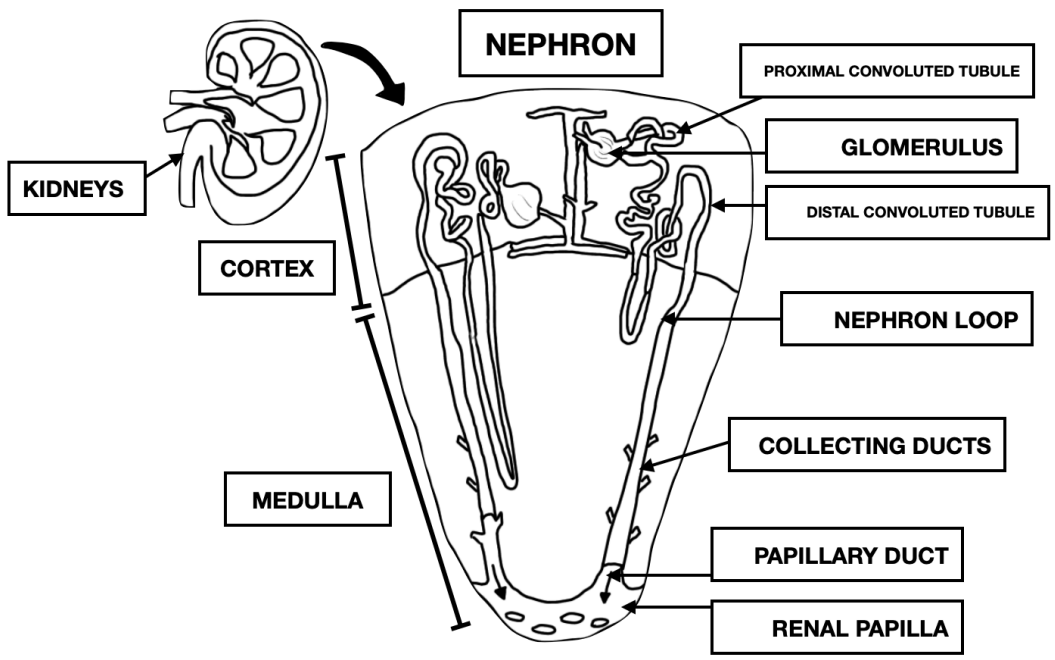
The Nervous System is made up of: the brain**, spinal cord,** and **nerves.** The Nervous System is split in the Central **Nervous System** and Peripheral Nervous System. The Peripheral Nervous System is also split into the Somatic Nervous System



and **Autonomic** Nervous System. The Autonomic Nervous System has the **Sympathetic** Division "Fight or Flight" and **Parasympathetic** Division "Rest and Digest". The left side of the brain is associated with LOGIC (math, writing). The right side of the brain is associated with ART (creativity, problem solving). The function of the **OCCIPITAL** lobe of the brain is vision.The function of the **PARIETAL** lobe of the brain is language, sensation, and perception.
The function of the **FRONTAL** lobe of the brain is speech, personality, and judgement.
The function of the **TEMPORAL** lobe of the brain is memory and hearing. Balance and coordination are controlled by the **CEREBELLUM** and autonomic functions like HR, BP, Temp, Breathing are controlled by the **BRAIN STEM**.

URINARY SYSTEM

The Urinary System is made up of the Urinary **Bladder**, Ureter, Renal **Pelvis**, Kidney, and Urethra. The main functions of the Urinary System is to filter blood and create urine (filled with toxins, drugs, waste) to be eliminated. The **kidneys** are responsible for filtering gallons of fluid from the bloodstream. A **nephron** is the structural and functional unit of the kidneys. The **Ureters** play an important role in transporting urine from the kidneys to the bladder while the **Urethra** carries urine from the bladder to the outside of the body (toilet). A different word for voiding or urinating is **Micturate**. Urine is formed by three processes:



Glomerular Filtration: water and solutes are forced through walls of glomerular capsule into renal tubule.

Tubular Reabsorption: water, glucose, amino acids, and ions transported out of filtrate, into tubule cells and then capillary blood.

Tubular Secretion: hydrogen, potassium, creating, drugs removed by blood and secreted by tubule cells.

DIGESTIVE SYSTEM

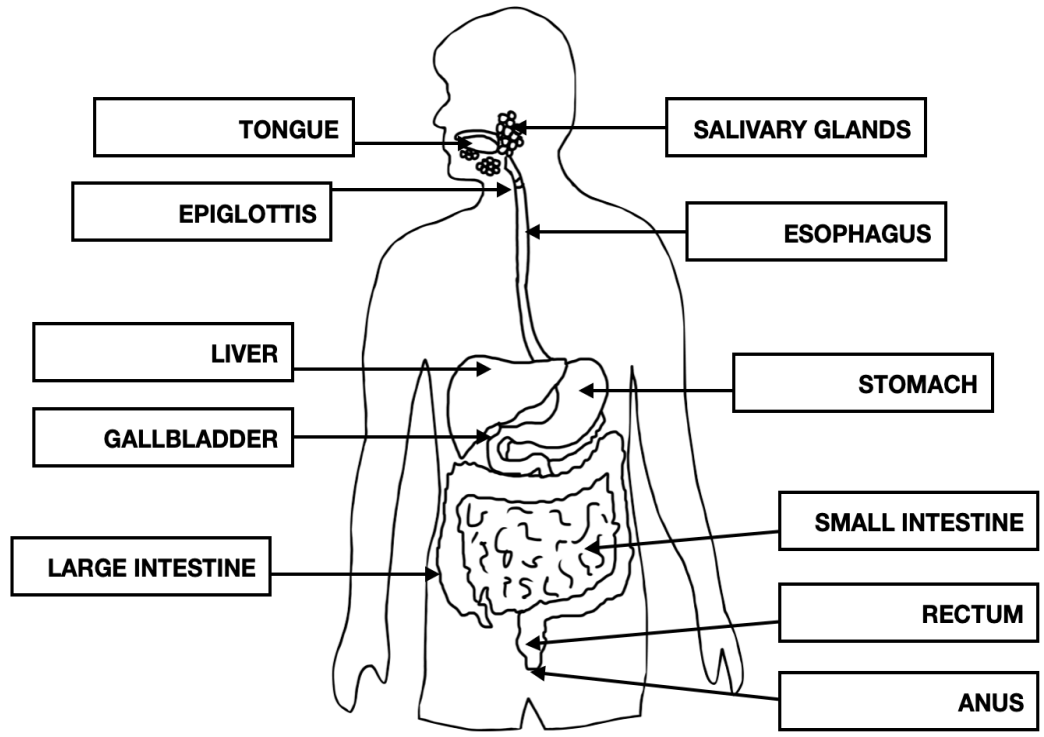
The Digestive System includes the mouth, **salivary** glands, pharynx, **stomach**, pancreas, esophagus, liver, **gallbladder**, small and large intestine, rectum, and anus. **Ingestion**: voluntary process of eating and bringing foods into the digestive system.

Propulsion: foods are processed and propelled from one organ to the next through peristalsis (waves of contraction/relaxation of muscles). *Ex: Swallowing*

Mechanical Digestion: foods are broken technically by the tongue, churning of stomach, and segmenting in small intestine.

Chemical Digestion: foods are broken down by enzymes.

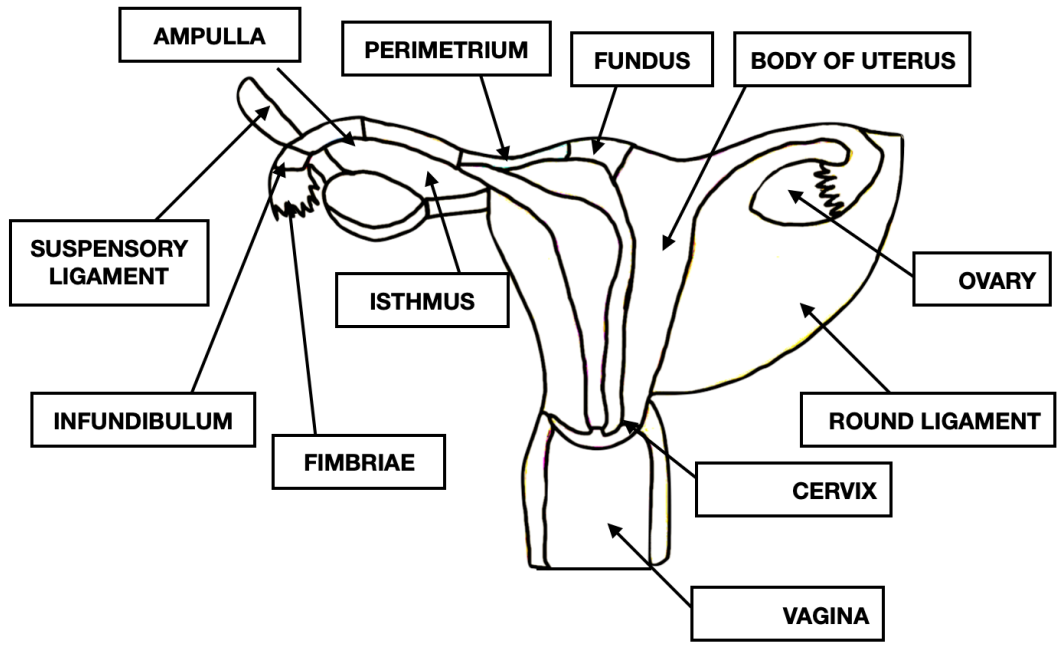
Absorption: digested food is absorbed into the intestinal lining of the bloodstream or lymph.



Defecation: elimination of waste in the form of feces.

FEMALE REPRODUCTIVE SYSTEM

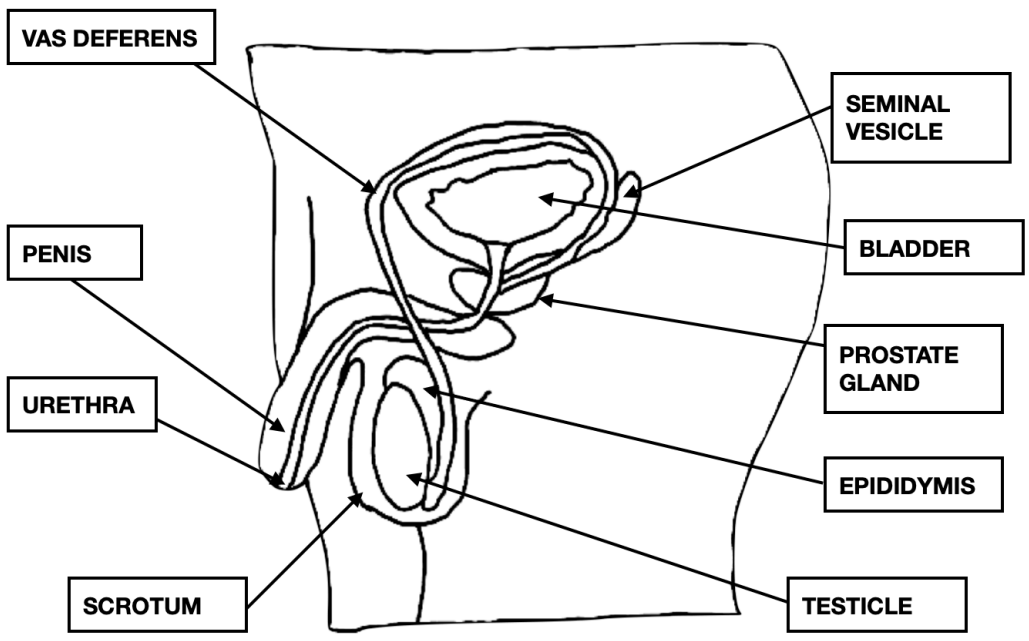
The Female Reproductive System is used to reproduce offspring. The egg cells with hormones are also called **OVARIES**. The ovaries are transported by the **FALLOPIAN TUBES** the uterus. The fimbria propels ovums into the fallopian tube. The uterus is the primary place for implantation and nourishment of a growing fetus. It can be divided into the **body**, **isthmus**, and **cervix** (opening). The main female sex hormone of **estrogen** stimulates the release of follicle stimulating hormone and luteinizing hormone (love hormone) used in growth and reproductive development. The other main female sex hormone of **progesterone** is produced during the second half of the menstrual cycle and thickens the lining of the endometrium to prepare for a fertilized egg.



MALE REPRODUCTIVE SYSTEM

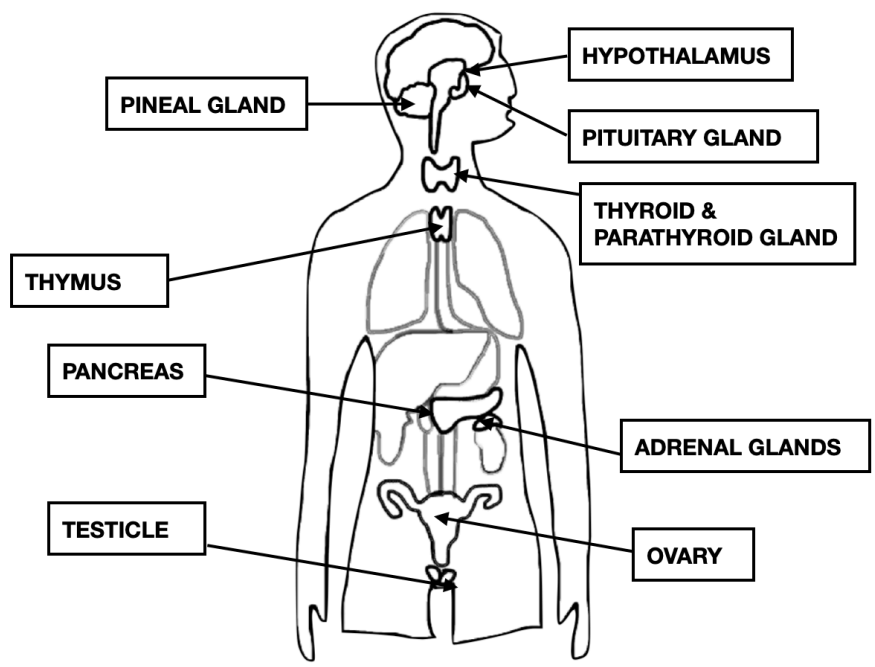
The **Male Reproductive System** is used to reproduce offspring. The male reproductive cell is called **SPERM**. The tightly coiled tube responsible for transporting sperm from the tubule to vas deferens is

called **Epididymis**. The seminal vesicles secrete a **LIQUID** with proteins, sugar, and prostaglandins that makes the sperm motile. The **PROSTATE** gland also secretes alkaline fluid that protects sperm from being damaged by the low pH level found in the urethra. A majority of semen is produced by the **PROSTATE** gland and the rest is produced by the seminal vesicles, epididymis, and bulbourethral glands. The **SCROTUM** regulates the temperature of sperm.The male sex hormone of testosterone and sperm is produced by the **TESTES**.



ENDOCRINE SYSTEM

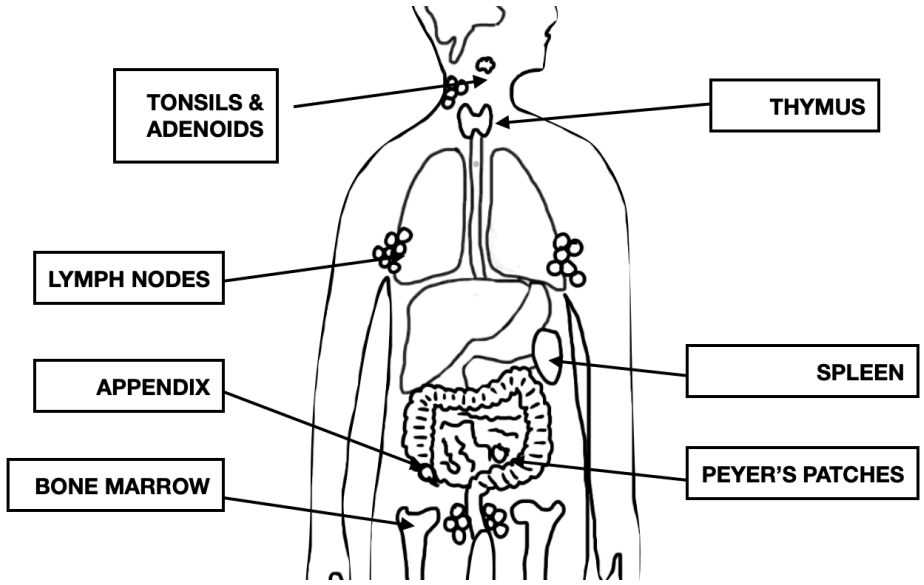
The main functions of the Endocrine System include water **equilibrium**, blood pressure management, blood **pressure** regulation, tissue growth, reproductive function, and protein metabolism. The organs included in the endocrine system are the: hypothalamus, pituitary **GLAND**, thyroid, parathyroid, **PINEAL** gland, adrenal cortex, adrenal **MEDULLA** and pancreas islets. The hormones of the anterior pituitary include: growth hormone, prolactin, ACTH, TSH, gonadotropic hormone, FSH, and LH hormone. The posterior pituitary hormones are Oxytocin and **ADH**. Melatonin, the sleep hormone, is produced by the **Pineal** gland. The hormone **Parathyroid** Hormone raises blood calcium vs the hormone **Calcitonin** lowers blood calcium.



LYMPHATIC SYSTEM

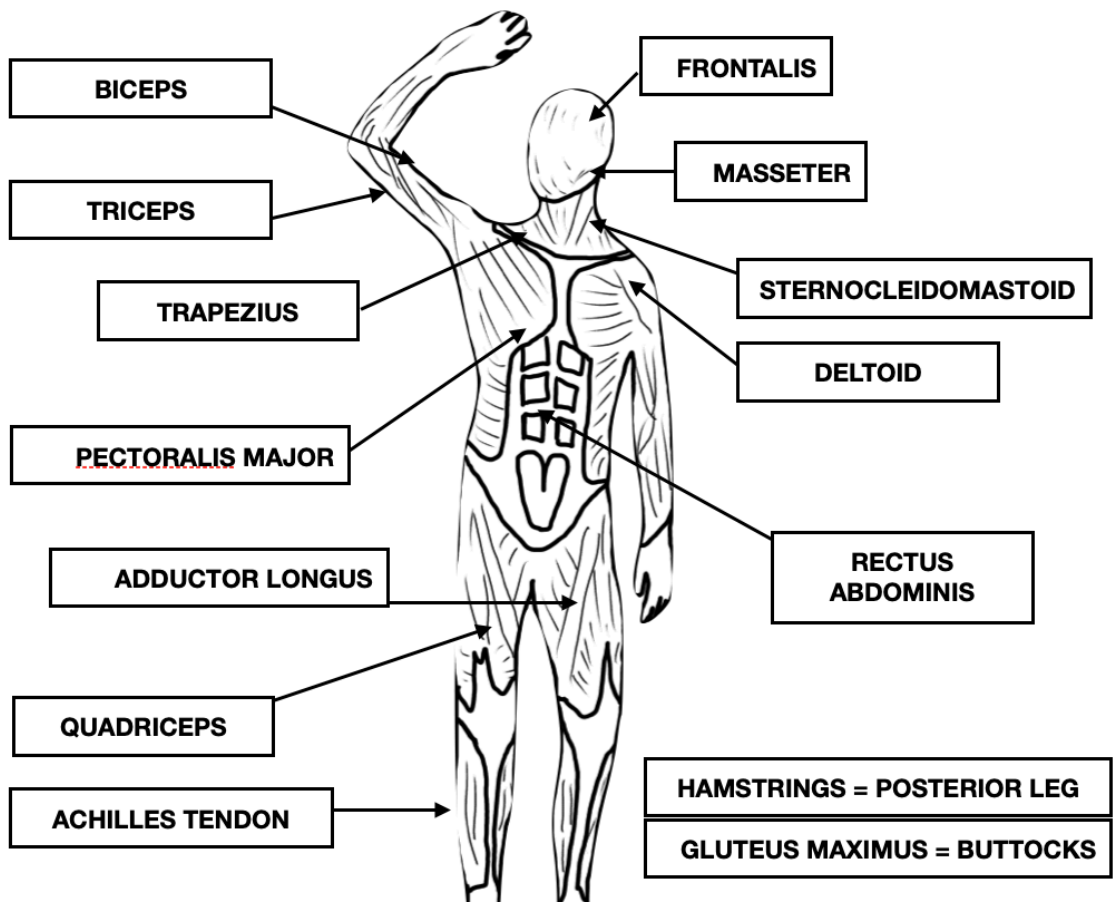
The **Lymphatic System** is used to the protect the body from pathogens, absorb **FAT**, and balance fluid levels. The **organs** included in the Lymphatic System include the: tonsils, spleen, appendix, red bone marrow, lymph nodes, thymus gland, Peyer's patches. **LYMPH** is the name of a drainage system that picks up excess tissue fluid. The Thymus produces T cells that watch and **DESTROY** pathogens

while B cells from Red Bone Marrow provide **antibodies** to prevent future attacks. The largest organ of the body that provides external protection is the **SKIN**. Other mechanisms of external defense are mucous membranes, skin secretions, and cilia in the nasal cavity. Internal defenses system include **PHAGOCYTES** that eat bacteria, the inflammatory response (heat, redness, swelling, **PAIN**), and antimicrobial proteins. A virus, bacteria, fungi, pollen, toxin is a type of **ANTIGEN**, and an **ANTIBODY** is used to bind to an antigen to reduce or stop its progression.



MUSCULAR SYSTEM

The **Muscular System** is made up of skeletal, cardiac, and smooth muscle. The functions of the muscular system are to produce **MOVEMENT**, maintain posture, stabilize **joints**, and generate **HEAT**. The outer layer of muscle is called the **epimysium**, middle layer is the perimysium, and the inner layer is called the endomysium.



Flexion : a movement that decreases the angle of a joint. "Coming Together"

Extension : a movement that increases the angle of a joint. "Distancing Apart"

Abduction : moving a limb away from the middle of the body.

Adduction : moving a limb towards the middle of the body.

Rotation : movement of a bone around a longitudinal axis.

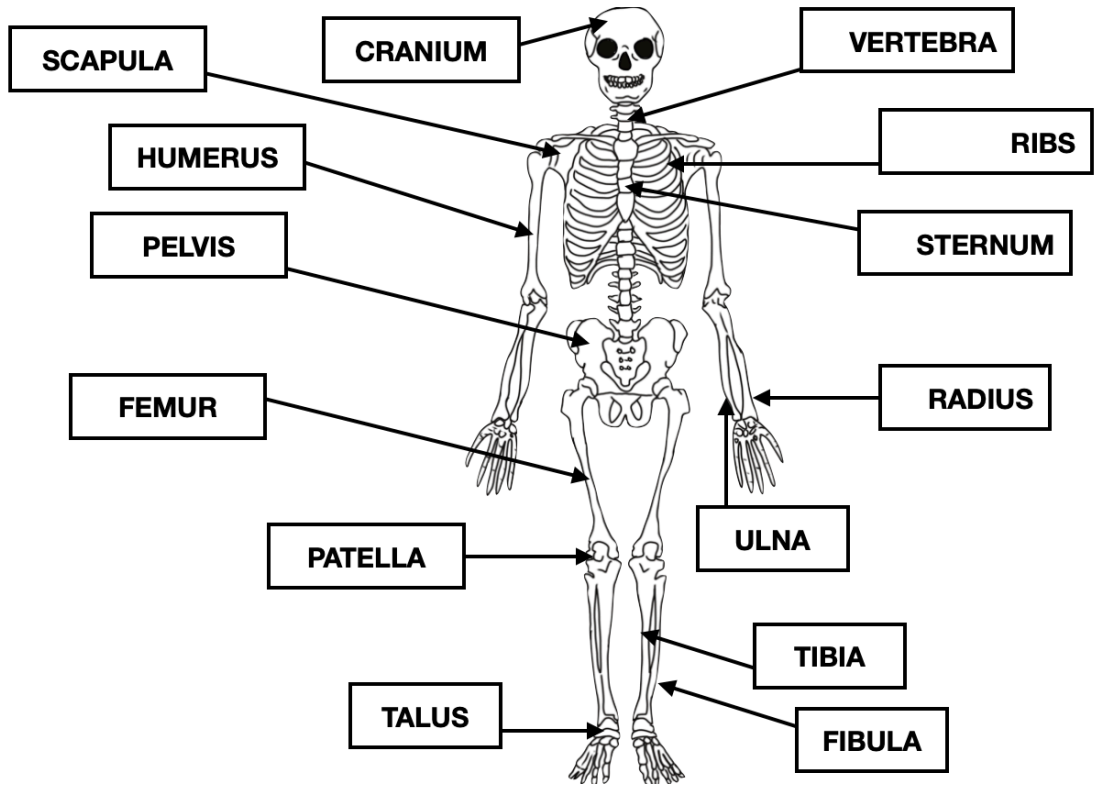
Eversion: moving the foot laterally **Inversion**: moving the foot inward (invert)

Supination: palms facing up (anterior) **Pronation**: palms facing down (posterior)

Smooth Muscle is **INVOLUNTARY**, Cardiac Muscle is **INVOLUNTARY**, Skeletal Muscle is **VOLUNTARY**.

SKELETAL SYSTEM

The Skeletal System includes the **BONES**, tendons, ligaments, and cartilage. The functions of the skeletal system includes supporting the body, protecting **ORGANS**, movements, storage of calcium, and blood cell formation. The Skeletal System is divided into the Axial & Appendicular skeleton. The **Axial Skeleton** include the longitudinal axis of the body bones (ribs, sternum, skull, vertebral column), while the Appendicular Skeleton include the **LIMBS** (arm, legs, hips). The two types of bone tissue are: compact and **SPONGY** bone. Bones can be classified into **four shapes**: long, short, flat, and irregular.



LONG BONE: humerus of arm

FLAT BONE: sternum

IRREGULAR BONE: vertebra

SHORT BONE: carpal of wrist

Mature bone cells are called **osteocytes**.

The types of Bone Marrow are: **RED MARROW** produces red blood cells, and **YELLOW MARROW** is made up of adipose tissue.