

## Chapter 1: Introduction to Human Anatomy and Physiology

**Anatomy:** Structure of Body Parts. Morphology

**Physiology:** Function of body parts. What they do and how.

\*A & P are very closely related - structure closely related to function

### Characteristics of Life

- Movement - self initiated change in position, motion of internal parts
- Responsiveness (irritability) - Ability to sense changes within, or around the organism and react to them
- Growth - increase in body size
- Reproduction - Parents produce offspring / producing new individuals
- Respiration - Obtaining oxygen (O<sub>2</sub>), using it to release energy from food substances, and getting rid of wastes
- Digestion - Chemically changing (breaking down) food substances, and getting rid of wastes
- Absorption - Passage of Digested products (food substances) through membranes and into body fluids
- Circulation - Movement of substances throughout the body
- Assimilation - Changing absorbed substances into chemically different substances
- Excretion - Removal of wastes

**METABOLISM:** All physical and chemical changes occurring in an organism

Needs: Water, food, oxygen, heat, pressure - all must be regulated

**HOMEOSTASIS:** Tendency of the body to maintain a stable, balanced internal environment. Accomplished through self regulating adjustments

### Levels of Organization (from simplest to most complex)

Source URL: <http://www.biologycorner.com/anatomy/chap1.html>

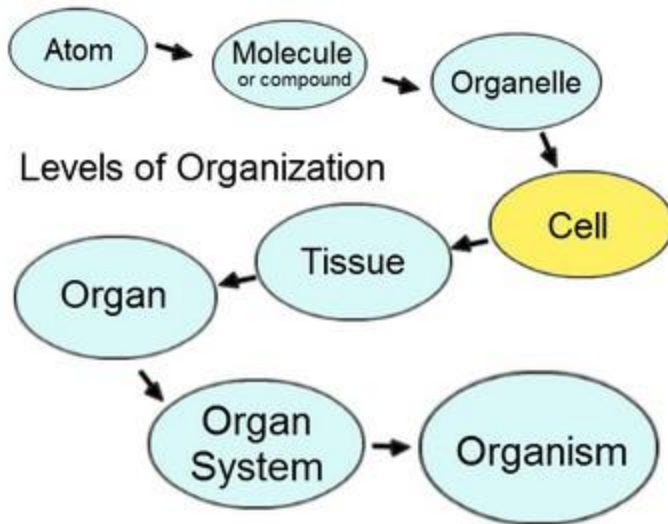
Saylor URL: <http://www.saylor.org/courses/bio304/>

Attributed to: [The Biology Corner]



[www.saylor.org](http://www.saylor.org)

Page 1 of 5



Atoms --> Molecules -->  
 Macromolecules --> Organelles -->  
 Cells --> Tissues --> Organs -->  
 Organ Systems --> Organism

\*A group (mass) of cells working together to carry out certain common functions form a tissue  
 \*A group of tissues working together to carry out certain common functions form an organ  
 \*A group of organs.....

General Organization of the

Body:

Axial Portion - head, neck, trunk  
 Appendicular Portion - arms & legs

1. Several body cavities
2. Layers of membranes within cavities
3. Variety of organs and organ systems within cavities (VISCERA = internal organs. "Visceral organs")

### Body Cavities (see p.9)

- A. Dorsal Cavity ---Cranial Cavity - Brain, Spinal Cavity - Spinal Cord
- B. Ventral Cavity

1. Thoracic Cavity - right and left compartment separated by mediastinum.  
Heart, lungs, esophagus, trachea
2. Abdominopelvic Cavity  
---Abdominal cavity - stomach, spleen, liver, gall bladder, small intestine  
---Pelvic cavity - part of the large intestine, urinary bladder, reproductive organs

\*Thoracic and abdominopelvic cavity separated by DIAPHRAGM  
 \*The organs within the cavities are surrounded by a type of two layered membrane called the SEROUS MEMBRANE

Source URL: <http://www.biologycorner.com/anatomy/chap1.html>  
 Saylor URL: <http://www.saylor.org/courses/bio304/>

Attributed to: [The Biology Corner]



[www.saylor.org](http://www.saylor.org)  
 Page 2 of 5

\*The outer layer of each membrane is called the PARIETAL layer and forms a "lining" against the inner wall of each cavity

\*The inner layer of each membrane covers the surface of each organ and is called the VISCERAL layer

Membranes:

1. Pleura (or pleural membrane) - surrounds the lungs

--outer layer = parietal pleura

--inner layer = visceral pleura

2. Pericardium (or pericardial membrane) - surrounds the heart

--outer layer = parietal pericardium

--inner layer = visceral pericardium

3. Peritoneum (or peritoneal membrane) - surrounds all the organs within the abdominopelvic cavity

--outer layer = parietal peritoneum

--inner layer = visceral peritoneum

\*Between the layers of each membrane is a lubricating fluid which is called SEROUS FLUID

## ORGAN SYSTEMS

1. Integumentary	Body covering. Skin, hair, nails, sweat glands. Function: protect underlying tissues and regulate body temperature
2. Skeletal	Bones, ligaments, cartilage Function: Support, movement, protection, and production of blood cells
3. Muscular	Muscles of the body Function: Movement, maintenance of posture, production of body heat
4. Nervous	Brain, spinal cord, nerves through the body Function: Communication throughout body, mental activities, maintaining homeostasis
5. Endocrine	Ductless glands = pituitary, adrenal, thyroid, parathyroid, pancreas, ovaries, testes, thymus, pineal glands Function: Secretion of hormones, communication between body parts
6. Digestive	Mouth, teeth, pharynx, esophagus, stomach, small intestine, large intestine, liver, gall bladder, and many glands including the pancreas Function: Breakdown of food substances into simpler forms that can be absorbed (digestion).

Source URL: <http://www.biologycorner.com/anatomy/chap1.html>

Saylor URL: <http://www.saylor.org/courses/bio304/>

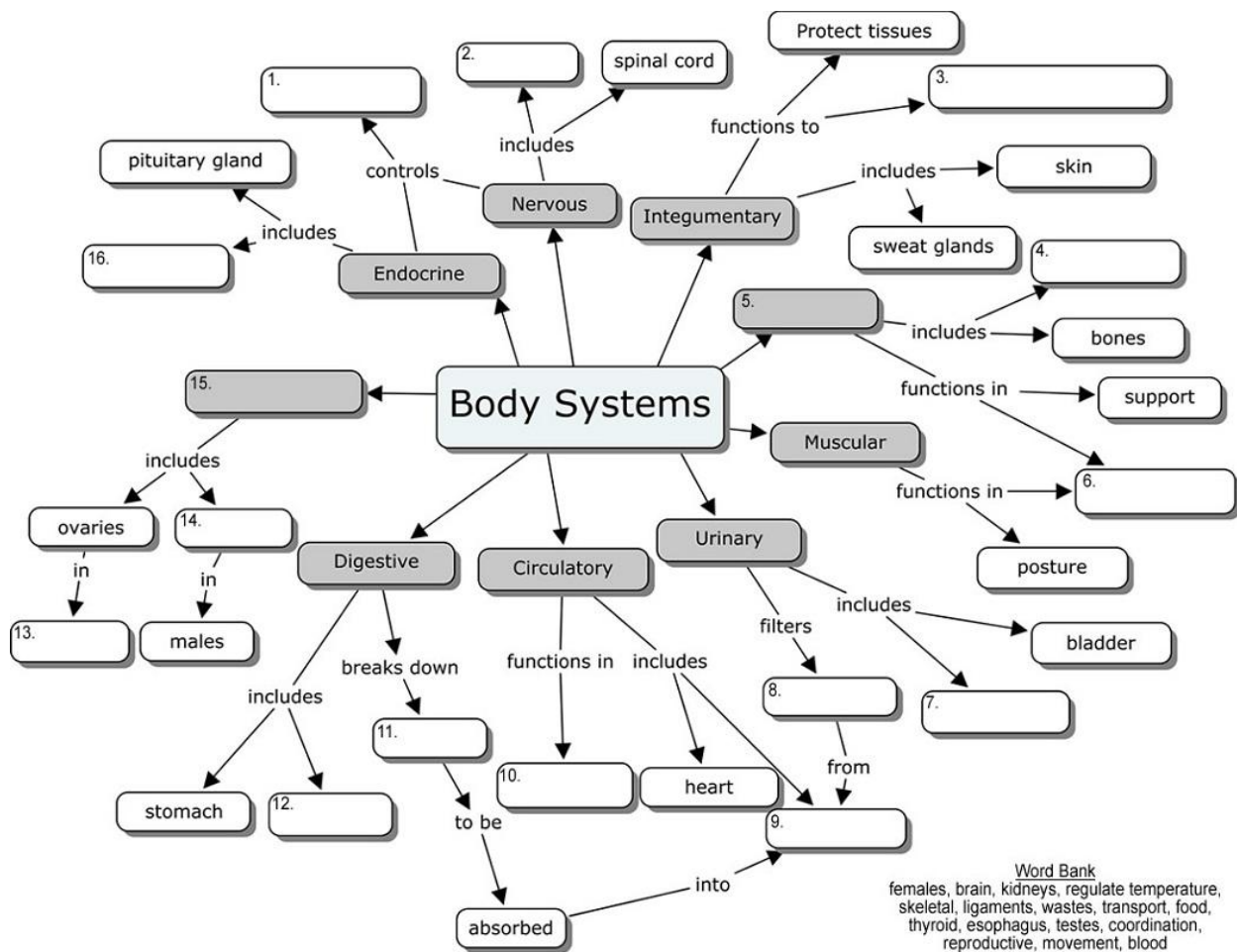
Attributed to: [The Biology Corner]



[www.saylor.org](http://www.saylor.org)

Page 3 of 5

7. Circulatory	Heart, blood vessels, blood. Function: Transports materials throughout the body. *Lymphatic system usually included with the circulatory system
8. Urinary	Kidneys, ureters, urinary bladder, urethra Function: Removes ("filters") wastes from the blood and helps maintain body's water and electrolyte balance
9. Reproductive	Reproductive organs, primarily the ovaries (females) and testes (males) Function: Produce special reproductive cells for reproduction



Source URL: <http://www.biologycorner.com/anatomy/chap1.html>  
Saylor URL: <http://www.saylor.org/courses/bio304/>

Attributed to: [The Biology Corner]



## Anatomical Terminology:

Anatomical Position = standing erect, face forward, arms at side, palms facing forward

\*Study and learn the following terms which are used to describe relative positions -- location of one body part with respect to another (p.13 -14)

1. Superior	5. Medial	9. Superficial
2. Inferior	6. Lateral	10. Deep
3. Anterior	7. Proximal	
4. Posterior	8. Distal	

\*Learn and understand the following body sections ("slices") through the body for observing internal structures

1. Sagittal
2. Transverse
3. Frontal (or coronal)

Source URL: <http://www.biologycorner.com/anatomy/chap1.html>

Saylor URL: <http://www.saylor.org/courses/bio304/>

Attributed to: [The Biology Corner]



[www.saylor.org](http://www.saylor.org)

Page 5 of 5