**Chapter One**

**The Human Body: An Orientation**

Lesson Objectives:

By the end of this chapter, you will be able to…

* ***Describe*** the different levels of organization in the human body.
* ***Describe*** anatomical position and use the descriptive and directional terms that refer to body structures, surfaces, and regions.
* ***List*** the regions of the body and the localized areas within each region.
* ***Identify*** body cavities and the organs found within each.
* ***Define*** homeostasis and describe its significance.
* ***List*** the characteristics of life.
* ***Describe*** the components of a negative and positive feedback loop and explain how each helps to maintain homeostasis.
* ***Discuss*** the key historical events in the development of anatomy and physiology.
1. **Overview**
* **Anatomy**:
	+ “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of body parts.
	+ Means “\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
	+ Dissection of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the basis for understanding the structure of the human body
* **Physiology**:
	+ “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of body parts.
	+ What these body parts do and how they do it.
	+ Means “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
	+ Much of the knowledge of physiology is gained through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \*A & P are very closely related – function is closely related to \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_
* **Essential Concept:** The Hierarchy of Structural Organization
	+ Chemical:
		- \_\_\_\_\_\_\_\_\_\_\_\_\_ combine to form molecules.
		- Different types of molecules:
			* small \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			* small \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Cellular:
		- Cells are made up of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- \_\_\_\_\_\_\_\_\_\_\_\_\_ and organelles are assembled from various molecules.
		- **\*\*\*\_\_\_\_\_\_\_\_\_\_\_\_\_ –** the basic structural and functional units of the organism
		- Cells are specialized for particular \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, e.g., muscle cells are specialized for contracting
		- Cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are sub-compartments with specialized tasks
	+ Tissue:
		- Tissues consist of similar types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- Groups of different cell types cooperate to perform specific functions.
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
		- Two or more different tissue types are organized to perform specific functions.
	+ Organ System:
		- Organ systems consist of different \_\_\_\_\_\_\_\_\_\_\_\_\_\_ that work together closely and cooperate in a related function.
	+ Organism: (Human Being)
		- The human organism is made up of many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- All of the organ systems working together to maintain life constitute the living organism
1. **Characteristics that make life unique**
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Self initiated change in position
	+ Motion of internal parts
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ :
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Ability to sense changes within, or around the organism
	+ React in response to surroundings
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Increase in body size
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Parents produce offspring / producing new individuals
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Obtaining oxygen (O2 ⇧), using it to release energy from food substances, and getting rid of wastes
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Chemically changing (breaking down) food substances
	+ Getting rid of wastes
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Passage of digested products (food substances) through membranes and into body fluids
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Movement of substances throughout the body
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Changing absorbed substances into chemically different substances
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:
	+ Removal of wastes
1. **Homeostasis**
* Survival needs
	+ Things required for an organism’s survival
		1. Atmospheric pressure – for gas exchange
	+ All, except E above, must be maintained within fairly narrow ranges
* Necessary life functions
	+ METABOLISM:
		1. All physical and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changes occurring in an organism
		2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			- Anabolism:
				* a metabolic process in which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to make compounds and tissues from simple molecules
				* \_\_\_\_\_\_\_\_\_ smaller units to make a larger one
			- Catabolism:
				* the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through the conversion of complex molecules into simpler ones
				* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ apart larger unit to make many smaller ones
	+ HOMEOSTASIS:
		1. Tendency of the body to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a stable, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ internal environment.
		2. “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
		3. Accomplished through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ adjustments
* Homeostatic Systems
	+ Three basic components
		1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
			- detects change in a variable (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/stress)
			- sends input (\_\_\_\_\_\_\_\_\_\_\_\_\_\_) to a control center
		2. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
			- assesses input; sends output to effector(s)
		3. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
			- causes response, i.e., an “effect” which is triggered by output
	+ Negative Feedback Loop
		1. Results in a return to homeostatic equilibrium because the **response \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ stimulus (stress)**
		2. Examples:
			- Regulation of blood \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			- Regulation of body \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			- Most other physiological mechanisms
	+ Positive Feedback Loop
		1. Results in a shift to a new homeostatic equilibrium because the **response \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the stimulus level (stress)**
		2. [“\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ effect”]
		3. Examples:
			- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/Childbirth
			- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ responses
		4. Most are responses to special conditions resulting in a \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ physiologic state
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		1. Pathological processes with a particular set of characteristics in which some or all parts of the body are not functioning correctly
			- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ may be local or systemic
			- different systemic changes are present and may suggest a cause
				* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** - subjective changes in body function, not observable; reported by the individual, e.g., pain
				* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** - objective changes which are observable, e.g., temperature, pulse
1. **Anatomical Terminology:** Anatomic terms describe directions within the body as well as the body’s reference planes, cavities, and regions.
	* **Anatomical position:** a constant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ point
	* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ terms:** help you determine the exact location of a structure when navigating the body
	* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ terms:** used to designate body areas that have perform special functions
		+ Axial
		+ Appendicular
	* Directional Terms
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** above
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** below
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** toward the front
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** toward the back
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** can be used instead of anterior
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** can be used instead of posterior
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** toward the body’s **m**idline
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** away from the body’s midline
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** closest to the point of origin
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** farthest from the point of origin
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** lying face up
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** lying face down
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** (aka - Cephalic) toward the head
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** toward the tail
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** On the same side of the body or structure
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** On the opposite side of the body or structure
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** Closer to the surface
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** Farther down below the surface
	* Anatomical Position
* General Organization of the Body
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Portion - head, neck, trunk
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Portion - arms & legs
	+ 1. Several body cavities
	2. Layers of membranes within cavities
	3. Variety of organs and organ systems within cavities (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = internal organs. "Visceral organs")
* Body Planes and Sections
	+ Body Planes
		- Mid-\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Sagittal)
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (cross)
	+ Body Cavities
		- Dorsal body cavity
		- Ventral body cavity
			* thoracic
				+
			* Abdominopelvic
	+ Other Body Cavities
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cavity – mouth
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cavity – located in the nose
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cavities – house the eye
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ear cavities – contain the small bones of the middle ear
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cavities – within capsule around freely moveable joints
	+ Membranes
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Membrane - two layered, covers organs
			* Outer layer = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			* Inner layer = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (lines the organs)
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fluid – lubricating fluid
		- Pleura = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		- Pericardium = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		- Peritoneum = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (abdominopelvic region)
		- Membranes in the Ventral Cavity
			* Like a “Fist in a balloon”
			* Membrane inside a membrane with a narrow enclosed space in between
				+ parietal

the outer membrane

on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - * + visceral

the inner membrane

on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - * + space

filled with watery fluid

* + - * Body cavity lined with serous membrane (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) which produces the serous fluid
			* Membrane named depending on its position, and the cavity’s organs inside
				+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (layer around heart)
				+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (layer right on top of heart)
	+ 9 Body Regions
		- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:**
			* the area around the belly button
			* **includes** – parts of the large and small intestine, \_\_\_\_\_\_\_\_\_\_\_\_\_ & abdominal \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:**
			* superior to the umbilical region
			* **includes** – most of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, portions of stomach, \_\_\_\_\_\_\_\_\_\_\_\_\_, inferior vena cava, & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (pubic):**
			* inferior to the umbilical region
			* **includes** – urinary \_\_\_\_\_\_\_\_\_\_\_\_\_, ureters, \_\_\_\_\_\_\_\_\_\_\_\_ & ovaries (females).
		- **Right & Left \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
			* **(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**
			* on either side of the hypogastric
			* **includes** – portions of the small and large \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- **Right & Left \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_):**
			* either side of the umbilical region
			* **includes** – portion of intestines and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- **Right & Left \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:**
			* either side of the epigastric region
			* **includes** – \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_, right side of liver, part of pancreas.
1. TEN Organ Systems

|  |
| --- |
| **ORGAN SYSTEMS** |
| 1.  | Body covering. Examples: Skin, hair, nails, sweat glands.Function: protect underlying tissues and regulate body temperature |
| 2.  | Examples: Bones, ligaments, cartilageFunction: Support, movement, protection, and production of blood cells |
| 3.  | Muscles of the bodyExamples: cardiac, smooth, skeletalFunction: Movement, maintenance of posture, production of body heat |
| 4.  | Examples: Brain, spinal cord, neurons, neuroglia Function: Communicating stimuli, mental processing, maintaining homeostasis  |
| 5.  | Examples: Ductless glands* Pituitary
* Adrenal
* Thyroid
* Pancreas
* Ovaries
* Testes
* Thymus
* Pineal glands

Function: Secretion of hormones, communication between body parts |
| 6.  | Examples:* 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). |
| 7.  | Examples: Heart, blood vessels, blood. Function: Transports materials throughout the body. \***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (#10)** usually included with the circulatory system |
| 8.  | Examples: Kidneys, ureters, urinary bladder, urethraFunction: * Removes ("filters") wastes from the blood
* helps maintain the body's water and electrolyte balance
 |
| 9.  | Examples: Reproductive organs, primarily the ovaries (females) and testes (males)Function: Produce special reproductive cells for reproduction |

1. Historical Development of Anatomy and Physiology
	* **Hippocrates**
		+ Father of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		+ Attributed disease to natural causes rather than to the displeasure of the gods
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** when blood, yellow bile, black bile, and phlegm were balanced, the person would be healthy and have an even disposition
			1. **Humor = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	* Agents in Metabolism – humoral theory
		+ The **Four Humors** are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of the four elements in the human body.
		+ The right balance and purity of them is essential to maintaining health.
		+ The Four Humors and the elements they serve are as follows:
			1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – AIR**
			2. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - WATER**
			3. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - FIRE**
			4. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – EARTH**
	* **The Four Temperments**
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ :* blood** predominate
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** too much **yellow bile**
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** overproduction of **black bile**
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***: too much **phlegm**
	* **Aristotle**
		+ First known account of ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***
		+ Described the development of a heart in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ embryo
		+ Established a type of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for obtaining data
	* **Erasistratus:**
		+ ***Father of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***
		+ Interested in what caused diseases and disorders and what organs were affected
		+ Some of his ideas were still based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ concepts
	* **Herophilus:**
		+ Criticized for the use of vivisection
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** dissection of living animals
		+ Described as a ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** who had dissected as many as \_\_\_\_\_\_\_\_ living human beings, some of them in public demonstrations
	* **Claudius Galen: (Roman Era)**
		+ Believed in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		+ Explained nearly all bodily functions
		+ Work contained MANY errors because he made conclusions regarding human functions on the basis of data obtained from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	* Middle Ages
		+ Dissections of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were totally prohibited during this period
		+ Examination by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were allowed for mysterious deaths
		+ During the plague epidemic, a few necropsies were allowed in hope to determine its cause
		+ ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:*** Post-mortem examination of a non-human animal
	* Renaissance
		+ Characterized by a rebirth of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		+ Vesalius
			1. Father of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			2. Challenged \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_’s teachings
			3. Beautifully \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and described body systems and individual organs in a book
	* 17th and 18th Centuries
		+ **William Harvey**
			1. explanation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ flow
			2. Father of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		+ **Antoni van Leeuwenhoek**
			1. Development and use of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
			2. Achieved magnification of \_\_\_\_\_\_\_\_\_\_\_\_ times
			3. View \_\_\_\_\_\_\_\_\_\_\_ cells and striated appearance of \_\_\_\_\_\_\_\_\_\_\_\_\_
	* 19th and 20th Centuries
		+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
			1. All living organisms are composed of cells and the products of cells
		+ Anatomy and Physiology has become highly specialized due to the increase of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_