I. Levels of Organization

A. Anatomy

1. Ana- apart tome- cut
2. Divisions
    a. Gross - large scale
    b. Microscopic

B. Physiology

1. Defn - The study of how an organism functions

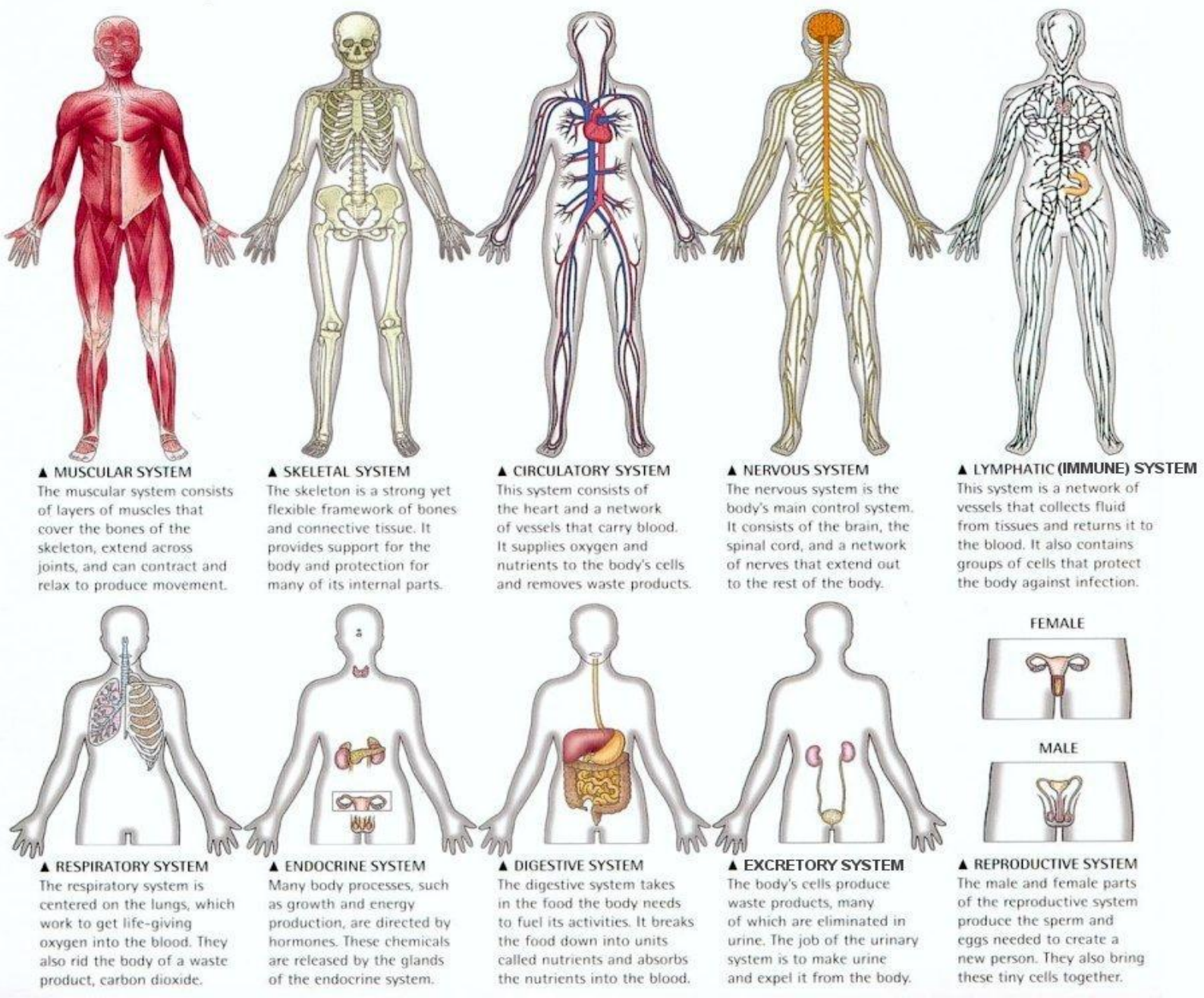
C. Relative anatomical terminology

1. Superior - toward head / Inferior - feet
3. Anterior - belly, forward / Posterior - back
5. Medial - toward midline / Lateral - away from midline
7. Proximal - toward pt of attach. / Distal - away from pt of attach (Limb only)
9. Central - main part / Peripheral - the branches
11. Prone - face down, palm down / Supine - face up, palm up
13. Deep - far from surface / Superficial - near surf
15. Viceral - toward organ / Parietal - toward body wall

D. Levels of organization

1. Atom
    Ions
2. Molecule
3. Macromolecule
    Carbohydrate, lipid, protein, nucleic acid
4. Cells
5. Tissue – many cells of the same type working together to perform a common function
    Epithelial Tissue –
    Connective Tissue -
    Muscle Tissue -
    Nerve Tissue -
6. Organ - many tissues

7. Organ system - many organs



▲ MUSCULAR SYSTEM
The muscular system consists of layers of muscles that cover the bones of the skeleton, extend across joints, and can contract and relax to produce movement.

▲ SKELETAL SYSTEM
The skeleton is a strong yet flexible framework of bones and connective tissue. It provides support for the body and protection for many of its internal parts.

▲ CIRCULATORY SYSTEM
This system consists of the heart and a network of vessels that carry blood. It supplies oxygen and nutrients to the body's cells and removes waste products.

▲ NERVOUS SYSTEM
The nervous system is the body's main control system. It consists of the brain, the spinal cord, and a network of nerves that extend out to the rest of the body.

▲ LYMPHATIC (IMMUNE) SYSTEM
This system is a network of vessels that collects fluid from tissues and returns it to the blood. It also contains groups of cells that protect the body against infection.

▲ RESPIRATORY SYSTEM
The respiratory system is centered on the lungs, which work to get life-giving oxygen into the blood. They also rid the body of a waste product, carbon dioxide.

▲ ENDOCRINE SYSTEM
Many body processes, such as growth and energy production, are directed by hormones. These chemicals are released by the glands of the endocrine system.

▲ DIGESTIVE SYSTEM
The digestive system takes in the food the body needs to fuel its activities. It breaks the food down into units called nutrients and absorbs the nutrients into the blood.

▲ EXCRETORY SYSTEM
The body's cells produce waste products, many of which are eliminated in urine. The job of the urinary system is to make urine and expel it from the body.

FEMALE

MALE

▲ REPRODUCTIVE SYSTEM
The male and female parts of the reproductive system produce the sperm and eggs needed to create a new person. They also bring these tiny cells together.

8. Organism - many systems

E. Anatomical terms - specific

1. Body planes and sections

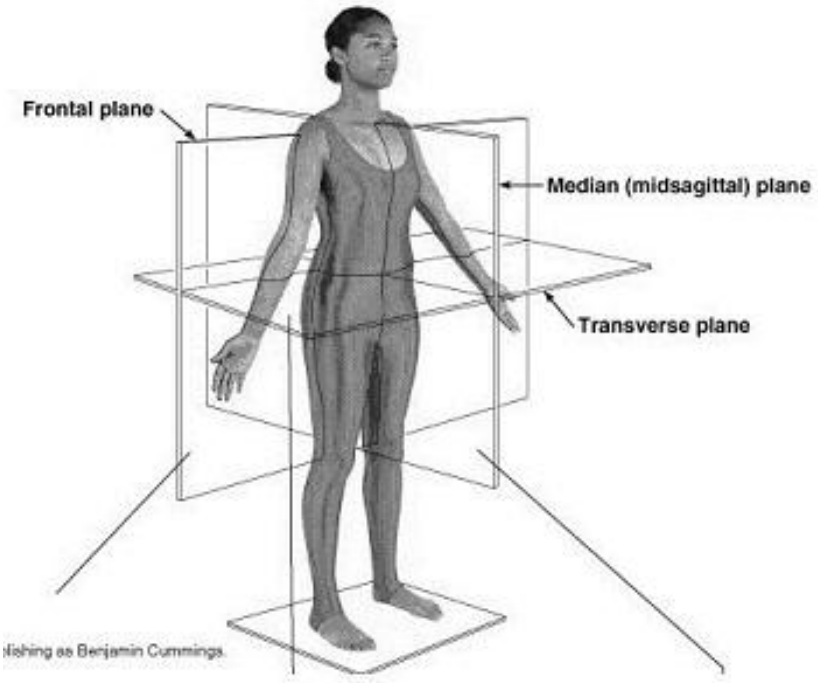
a. Sagittal - cut into left and right parts

b. Midsagittal - cut into <u>equal</u> left and right halves

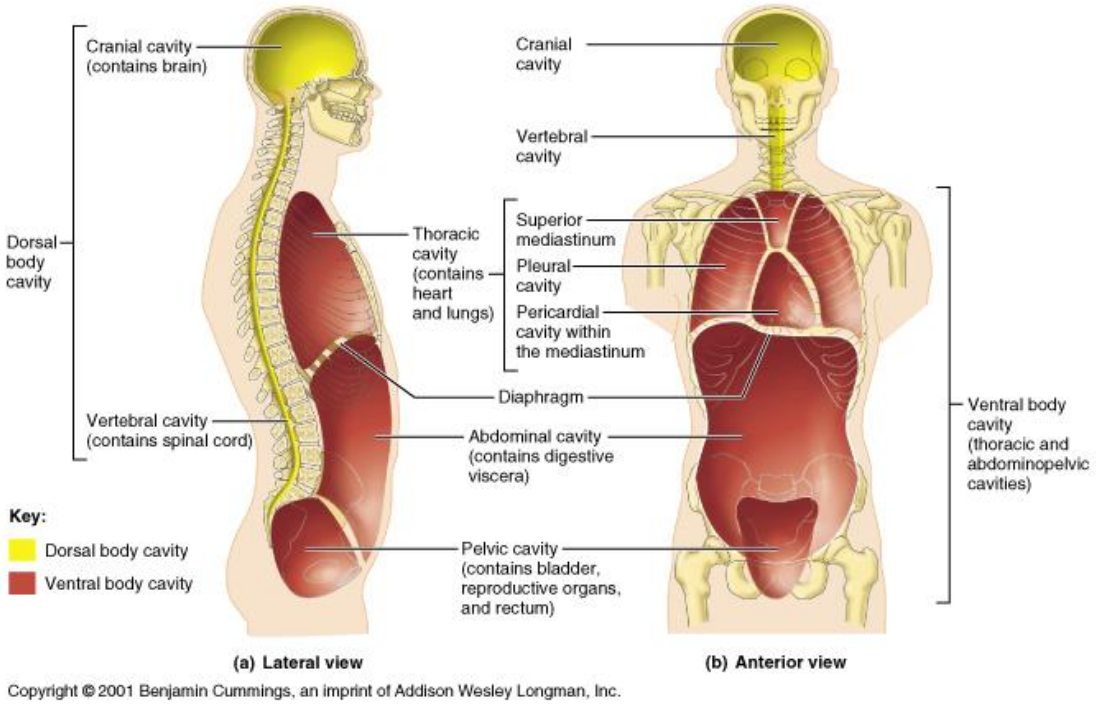
c. Frontal - divide body into front and back

d. Transverse - cut into top and bottom

e. Longitudinal - lengthwise in some plane other than sagittal or frontal



2. Body Cavities and their organs



a. Dorsal

Cranial contains Brain

Ventral contains spinal cord

b. Ventral

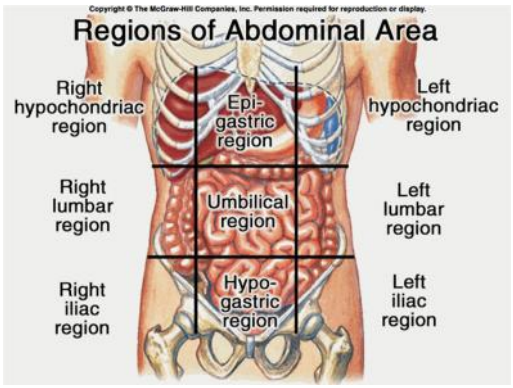
1). Thoracic - chest cavity

a). Pleural - lungs

b). Pericardial - heart

c). Mediastinum - trachea, esophagus

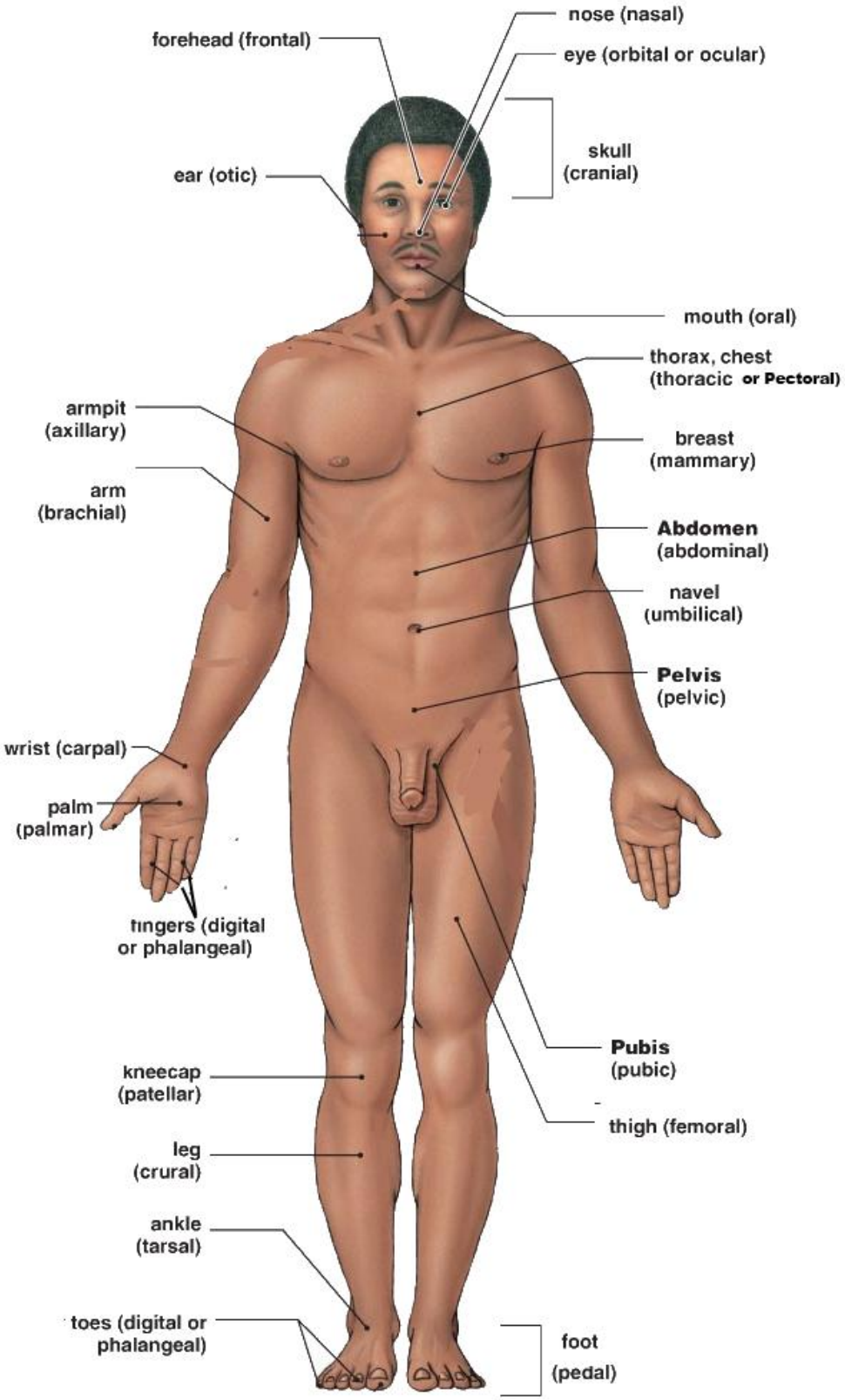
2). Abdominopelvic



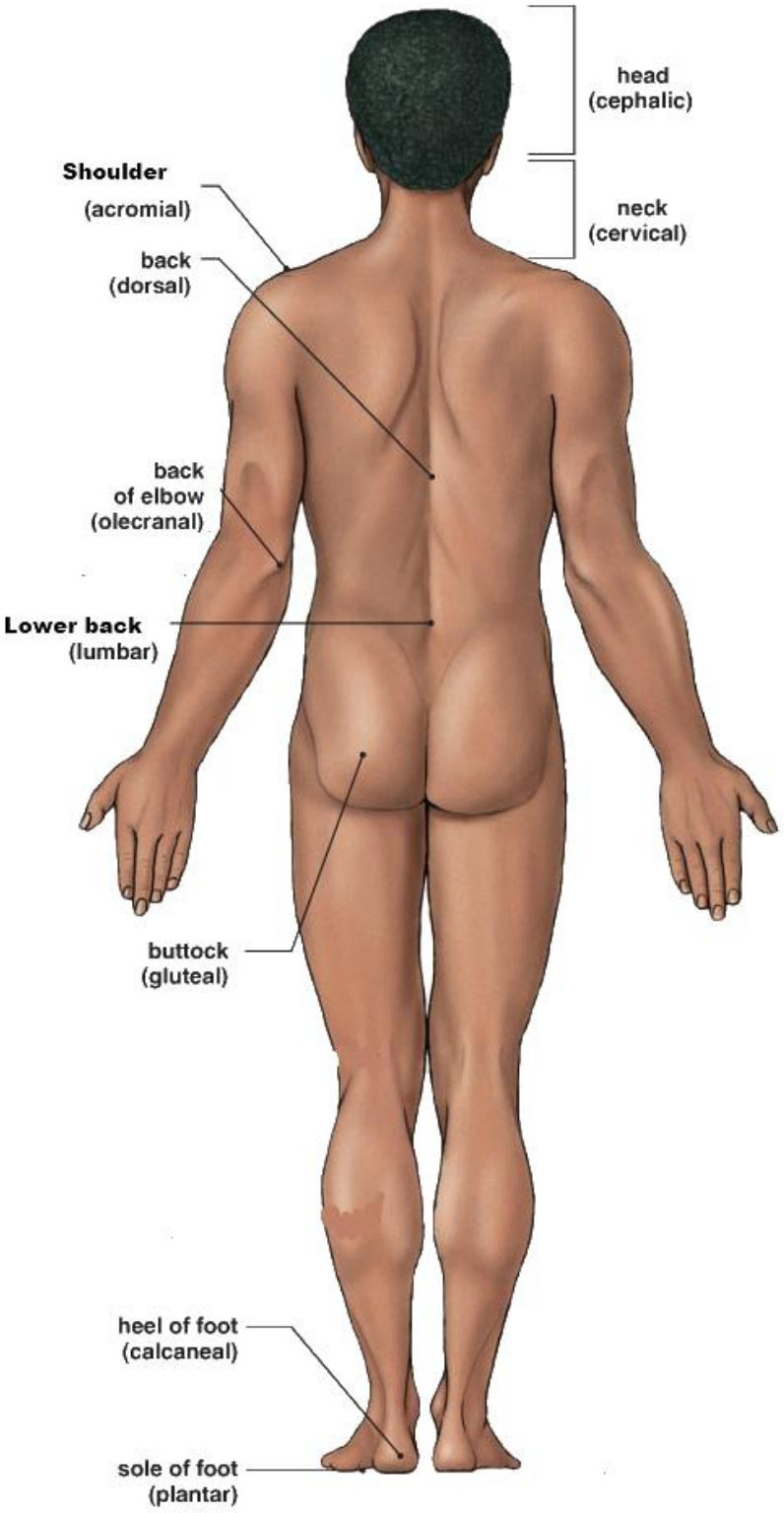
Contains Digestive organs, reproductive organs and excretory organs.

F. Specific anatomical regions

a.



The anatomical position in anterior view



The anatomical position in posterior view

G. Homeostasis

1. The collective responses the body undergoes in an attempt to maintain internal environmental conditions within acceptable parameters

External Environment vs Internal Environment

Feedback Loops – self regulation

Positive Feedback Loop *– self feeding, small starter stimulus causes an imbalance. That imbalance causes a reaction. That reaction causes a larger reaction and so on. Think of a fire, the more it burns, the more additional things catch fire… until there is nothing left.* ***Once set in motion, there is no turning back.***

Negative Feedback Loop *– self limiting, small starter stimulus causes an imbalance. That triggers a reaction which attempts to reverse the imbalance. The more severe the imbalance, the more powerful the attempt to reverse it.*