

# Organization of the Body

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## I. Anatomy and Physiology

**Concept:** Anatomy and physiology are broad areas of biological inquiry concerned with the structure and function of an organism.

Objective 1: Define the term *anatomy*.

Objective 2: Define the term *gross anatomy*.

Objective 3: Define the term *microscopic anatomy*.

Objective 4: Define the term *systemic anatomy*.

Objective 5: Define the term *physiology*.

### Multiple Choice Questions

- \_\_\_ 1. *Anatomy* refers to:
- using devices to investigate parameters such as heart rate and blood pressure.
  - investigating human structure via dissection and other methods.
  - studying the unusual manner in which an organism responds to painful stimuli.
  - examining the chemistry of life.
- \_\_\_ 2. *Systemic anatomy* refers to:
- anatomical investigation at a microscopic level.
  - anatomical investigation that begins in the head and neck and concludes at the feet.
  - anatomical investigation that approaches the study of the body by systems: groups of organs having a common function.
  - anatomical investigation at the cellular level.
- \_\_\_ 3. *Physiology* refers to:
- the nature of human function.
  - the structure of the human form.
  - the evolution of human thought.
  - the accuracy of measuring human physique.

### True-False Questions

- \_\_\_ 4. Anatomy deals with structure whereas physiology deals with function.
- \_\_\_ 5. *Gross anatomy* refers to the study of body parts with the aid of scanning electron microscopy.
- \_\_\_ 6. Physiologists examine the intricate control systems that permit the body to function in an often hostile environment.

## II. Characteristics of Life

**Concept:** Although *life* is very difficult to define, scientists know that a living organism is endowed with certain characteristics not associated with inorganic matter.

Objective 6: List the ten attributes that characterize life as defined in your text.

### Multiple Choice Questions

- \_\_\_ 7. Which of the following is *not* one of the characteristics of life?
- digestion
  - vision
  - conductivity
  - circulation
  - reproduction
- \_\_\_ 8. *Metabolism* can be defined as:
- breaking the molecular bonds of food.
  - expending calories via vigorous exercise.
  - the heat lost during chemical reactions.
  - the sum total of all physical and chemical reactions occurring in the living body.

## III. Levels of Organization

**Concept:** The body is organized into structural and functional levels, so that its component parts can be more easily understood.

Objective 7: Identify the seven levels of organization, beginning with the chemical level.

Objective 8: Identify each of the 11 major organ systems of the body. List the specific organs and functions of each system.

### Multiple Choice Questions

- \_\_\_ 9. Beginning with the smallest level, the levels of organization of the body are:
- cellular, chemical, tissue, organelle, organ, system, organism.
  - cellular, chemical, organelle, organ, tissue, organism, system.
  - chemical, cellular, organelle, tissue, organ, system, organism.
  - chemical, organelle, cellular, tissue, organ, system, organism.
- \_\_\_ 10. Molecules are:
- combinations of atoms forming larger chemical aggregates.
  - electrons orbiting a nucleus.
  - a complex of electrons arranged in orderly shells.
  - composed of cellular organelles.
- \_\_\_ 11. Mitochondria, Golgi apparatus, and endoplasmic reticulum are examples of:
- macromolecules.
  - cytoplasm.
  - organelles.
  - nuclei.

- \_\_\_ 12. When many similar cells specialize to perform a certain function, this is referred to as:
- tissue.
  - organ.
  - organ system.
  - organism.
- \_\_\_ 13. Several kinds of tissues working together is referred to as a(n):
- cell.
  - organ.
  - organism.
  - organelle.
- \_\_\_ 14. Hematopoiesis is a function of which system?
- circulatory
  - respiratory
  - skeletal
  - urinary
- \_\_\_ 15. Processing, regulation and maintenance is a function of which systems?
- respiratory, digestive, and urinary systems
  - reproductive and urinary systems
  - skeletal and muscular systems
  - cardiovascular and lymphatic/immune systems

### True-False Questions

- \_\_\_ 16. Every material thing in our universe, including the human body, is composed of atoms.
- \_\_\_ 17. The nose, pharynx, larynx, trachea, bronchi, and lungs are parts of the respiratory system.
- \_\_\_ 18. The integumentary system consists of the brain, spinal cord, and peripheral nerves.
- \_\_\_ 19. The thymus is an organ that contributes to more than one system.
- \_\_\_ 20. The endocrine system is composed of specialized glands that secrete chemicals known as hormones directly into the blood.

### Matching

*Match each system with its corresponding functions.*

- |                               |  |
|-------------------------------|--|
| ___ 21. integumentary system  | a. support and movement                    |
| ___ 22. skeletal system       | b. communication, control and integration  |
| ___ 23. muscular system       | c. outer protection                        |
| ___ 24. nervous system        | d. reproduction and development            |
| ___ 25. endocrine system      | e. transportation and defense              |
| ___ 26. digestive system      | f. processing, regulation, and maintenance |
| ___ 27. respiratory system    |  |
| ___ 28. cardiovascular system |  |
| ___ 29. lymphatic system      |  |
| ___ 30. urinary system        |  |
| ___ 31. reproductive system   |  |

## Labeling

Match each term with its corresponding numbered part in the illustration below.

\_\_\_ organism      \_\_\_ tissue      \_\_\_ chemical      \_\_\_ organ  
 \_\_\_ cell          \_\_\_ organ system      \_\_\_ organelle

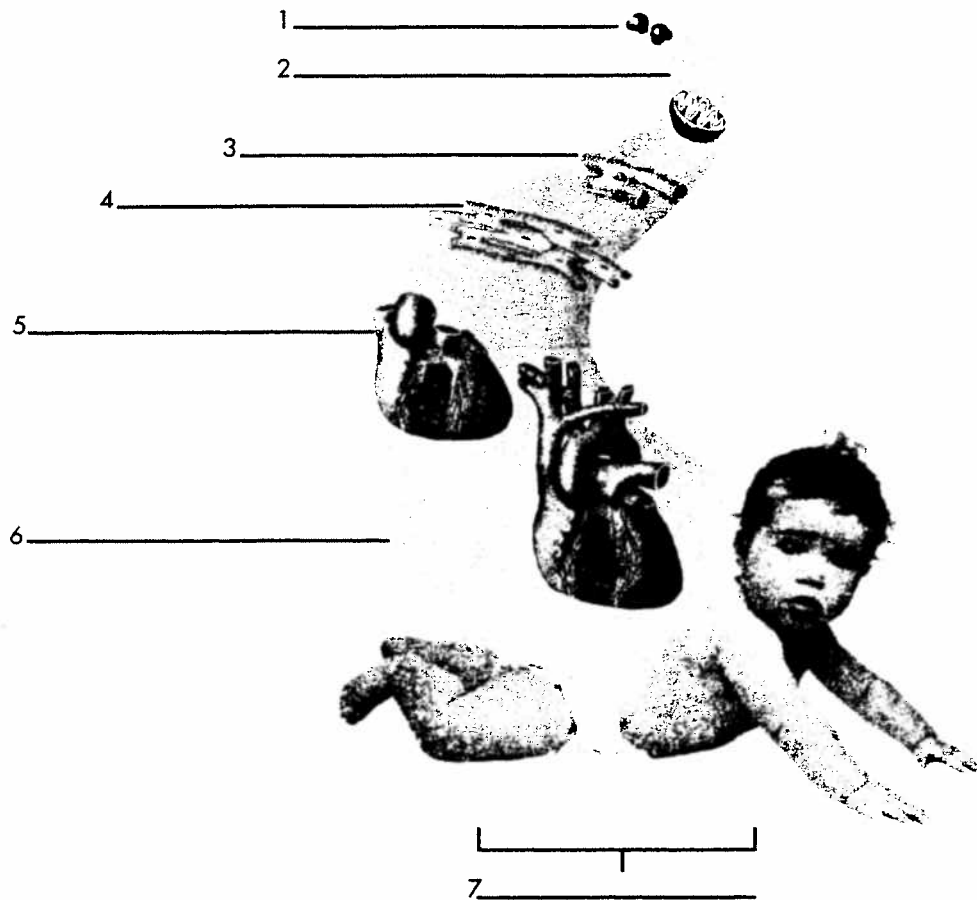


Figure 1-1

## IV. Homeostasis

**Concept:** The precise and constant regulation of the internal environment within narrow limits is necessary for life.

Objective 9: Define *homeostasis*.

Objective 10: Identify the importance of homeostatic control mechanisms and the function of the negative and positive feedback loops.

### Multiple Choice Questions

- \_\_\_ 32. *Homeostasis* can be defined as:
- the relatively constant states maintained by the body.
  - the overall contribution of an organ system.
  - the external stimuli that evoke a disruption to an organism.
  - the lack of cytoplasm within a plasma membrane.

- \_\_\_ 33. Which of the following is *not* a component of a feedback control loop?
  - a. sensory mechanism
  - b. integrating, or control, center
  - c. effector mechanism
  - d. stressor stimulator
  
- \_\_\_ 34. Negative feedback control systems:
  - a. oppose a change.
  - b. accelerate a change.
  - c. ignore a change.
  
- \_\_\_ 35. Positive feedback control systems:
  - a. oppose a change.
  - b. accelerate a change.
  - c. ignore a change.

### True-False Questions

- \_\_\_ 36. A positive feedback control system produces a change opposite to that which activated the system.
- \_\_\_ 37. Any given physiological parameter will never deviate beyond the set point.
- \_\_\_ 38. In the thermostatically regulated furnace example of negative feedback, the furnace functions as the sensor.
- \_\_\_ 39. Negative feedback systems are inhibitory.
- \_\_\_ 40. The process of childbirth, in which the baby's head causes increased stretch of the reproductive tract, which in turn feeds back to the brain, thus triggering the release of oxytocin, is an example of positive feedback.

## V. Anatomical Position, Body Cavities, Body Regions, Anatomical Terms, and Body Planes

**Concepts:** Detailed descriptions of the human body require that appropriate terms be used. Anatomical position is the reference position used for describing the relative position of body parts. Body cavities, body regions, and anatomical terms also assist in identifying the location of anatomical structures with respect to one another. Body planes allow for the division of the body into three perpendicular planes.

- Objective 11: Describe the anatomical position.
- Objective 12: Describe the two major body cavities and the organs present in each.
- Objective 13: Describe the axial and appendicular subdivisions of the body and the anatomical regions of each area.
- Objective 14: List the nine abdominal regions and the four abdominopelvic quadrants.
- Objective 15: Identify and describe the principle directional terms and body planes employed in describing the body.

## Multiple Choice Questions

- \_\_\_ 41. In the anatomical position, the subject is:
- seated with the head facing forward.
  - standing with the arms at the side and palms facing forward.
  - seated with arms parallel to the ground.
  - standing with the arms at the side and palms facing backward.
- \_\_\_ 42. The dorsal body cavity contains the:
- brain and spinal cord.
  - abdominal organs.
  - pelvic organs.
  - thoracic organs.
- \_\_\_ 43. The ventral body cavity contains:
- thoracic and abdominopelvic cavities.
  - thoracic cavity only.
  - abdominopelvic cavity only.
  - brain and spinal cord.
- \_\_\_ 44. The axial portion of the body consists of:
- arms, neck, and torso.
  - neck, torso, and legs.
  - torso, arms, and legs.
  - head, neck, and torso.
- \_\_\_ 45. The abdominopelvic cavity contains all of the following *except* the:
- kidneys.
  - pancreas.
  - lungs.
  - urinary bladder.
- \_\_\_ 46. The mediastinum contains all of the following *except* the:
- esophagus.
  - aorta.
  - lungs.
  - trachea.
- \_\_\_ 47. Visceral peritoneum would cover which of the following organs?
- heart
  - liver
  - lungs
  - brain
- \_\_\_ 48. A sagittal section would divide the body into:
- upper and lower parts.
  - right and left sides.
  - front and back portions.