

## Laboratory Exercise

# 2

# Body Organization and Terminology

### Materials Needed

Textbook  
Dissectible human torso model (manikin)  
Variety of specimens or models sectioned along various planes

#### For Learning Extension:

Colored pencils

The major features of the human body include certain cavities, a set of membranes associated with these cavities, and a group of organ systems composed of related organs. To communicate effectively with each other about the body, scientists have devised names to describe these body features. They also have developed terms to represent the relative positions of body parts, imaginary planes passing through these parts, and body regions.

### Purpose of the Exercise

To review the organizational pattern of the human body; to review its organ systems and the organs included in each system; and to become acquainted with the terms used to describe the relative position of body parts, body sections, and body regions.

### Learning Outcomes

After completing this exercise, you should be able to

1. Locate and name the body cavities and identify the organs and membranes associated with each cavity.
2. Differentiate the general functions of the organ systems of the human body.
3. Associate the organs included within each system and locate the organs in a dissectible human torso model.
4. Select the terms used to describe the relative positions of body parts.
5. Match the terms used to identify body sections and identify the plane along which a particular specimen is cut.
6. Label body regions and associate the terms used to identify body regions.

### Procedure A—Body Cavities and Membranes

1. Review the sections entitled “Body Cavities” and “Thoracic and Abdominopelvic Membranes” in chapter 1 of the textbook.
2. As a review activity, label figures 2.1 and 2.2.
3. Locate the following features on the reference plates near the end of chapter 1 of the textbook and on the dissectible human torso model (fig. 2.3):

#### body cavities

- cranial cavity
- vertebral canal (spinal cavity)
- thoracic cavity
  - mediastinum (region between the lungs; includes pericardial cavity)
  - pleural cavities
- abdominopelvic cavity
  - abdominal cavity
  - pelvic cavity

#### diaphragm

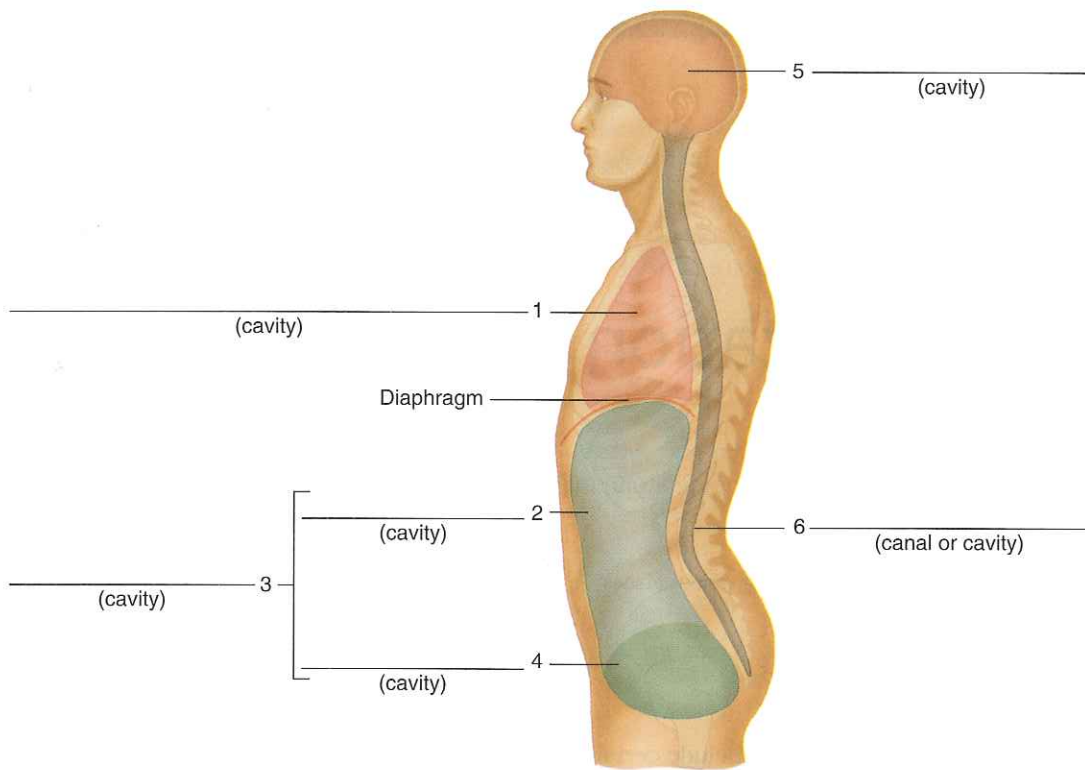
#### smaller cavities within the head

- oral cavity
- nasal cavity with connected sinuses
- orbital cavity
- middle ear cavity

#### membranes and cavities

- pleural cavity
  - parietal pleura
  - visceral pleura
- pericardial cavity
  - parietal pericardium (covered by fibrous pericardium)
  - visceral pericardium (epicardium)
- peritoneal cavity
  - parietal peritoneum
  - visceral peritoneum

4. Complete Part A of Laboratory Report 2.



**Figure 2.1** Label these body cavities. 1

## Procedure B—Organ Systems

1. Review the section entitled “Organ Systems” in chapter 1 of the textbook.
2. Use the reference plates near the end of chapter 1 of the textbook and the dissectible human torso model (fig. 2.3) to locate the following organs:

### integumentary system

- skin
- accessory organs such as hair and nails

### skeletal system

- bones
- ligaments
- cartilages

### muscular system

- skeletal muscles
- tendons

### nervous system

- brain
- spinal cord
- nerves

### endocrine system

- pituitary gland
- thyroid gland
- adrenal glands
- pancreas

- ovaries
- testes
- thymus

### cardiovascular system

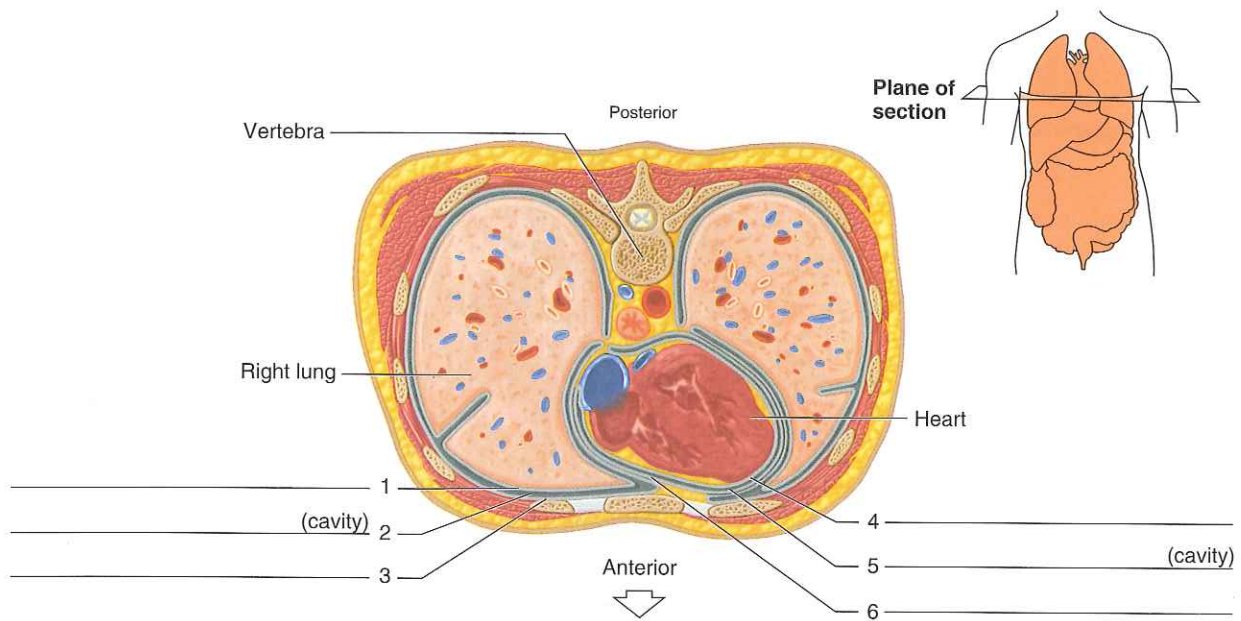
- heart
- arteries
- veins

### lymphatic system

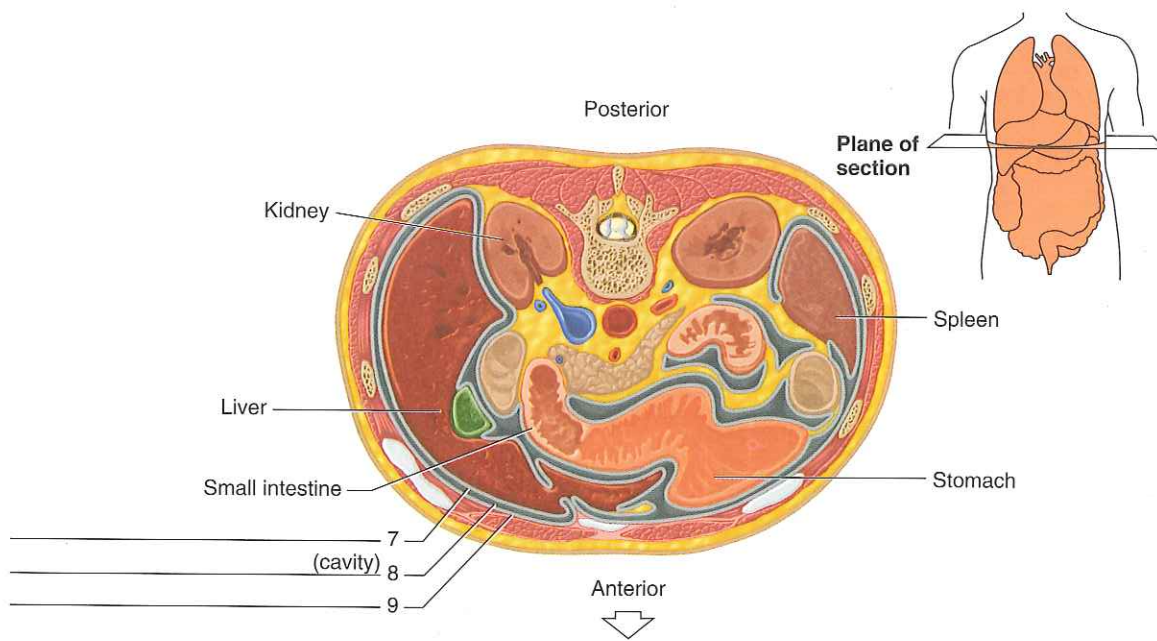
- lymphatic vessels
- lymph nodes
- thymus
- spleen

### digestive system

- mouth
- tongue
- teeth
- salivary glands
- pharynx
- esophagus
- stomach
- liver
- gallbladder
- pancreas
- small intestine
- large intestine



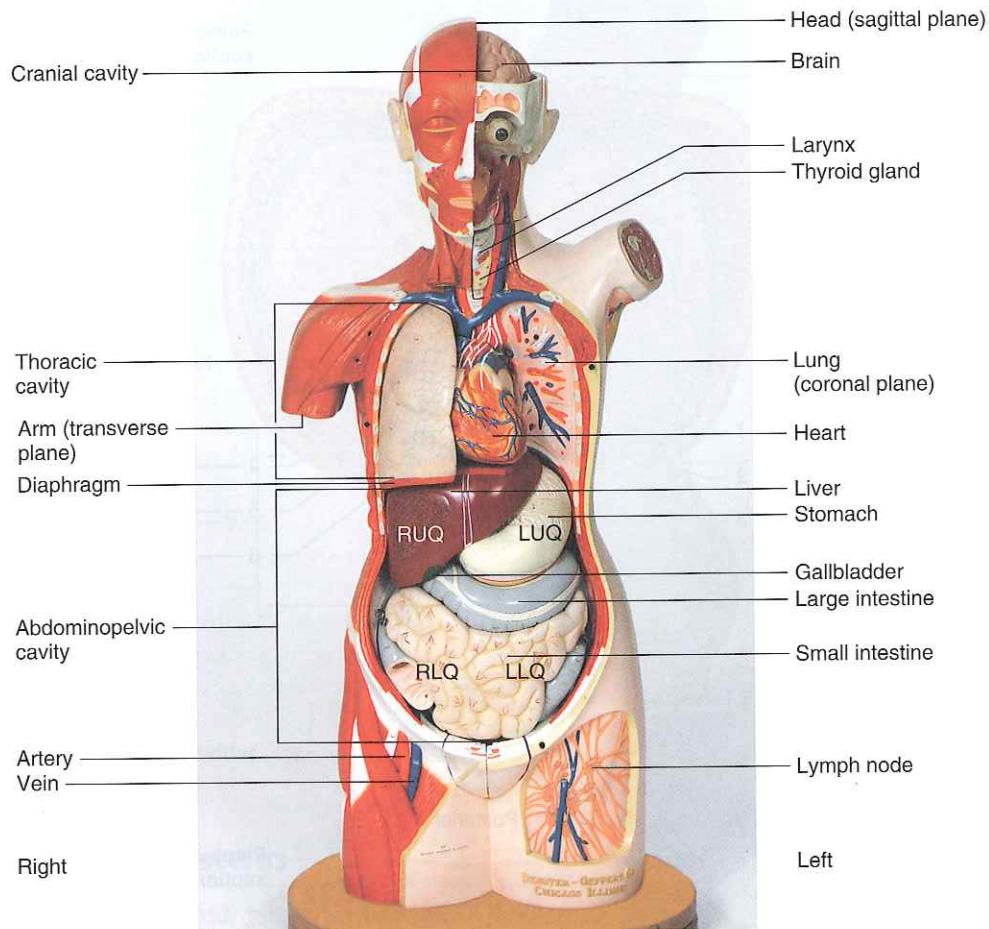
(a)



(b)

**Figure 2.2** Label the thoracic membranes and cavities in (a) and the abdominopelvic membranes and cavity in (b) as shown in these superior views of transverse sections. **1**





**Figure 2.3** Dissectible human torso model with body cavities, abdominopelvic quadrants, body planes, and major organs indicated.

**respiratory system**

- nasal cavity
- pharynx
- larynx
- trachea
- bronchi
- lungs

**urinary system**

- kidneys
- ureters
- urinary bladder
- urethra

**male reproductive system**

- scrotum
- testes
- penis
- urethra

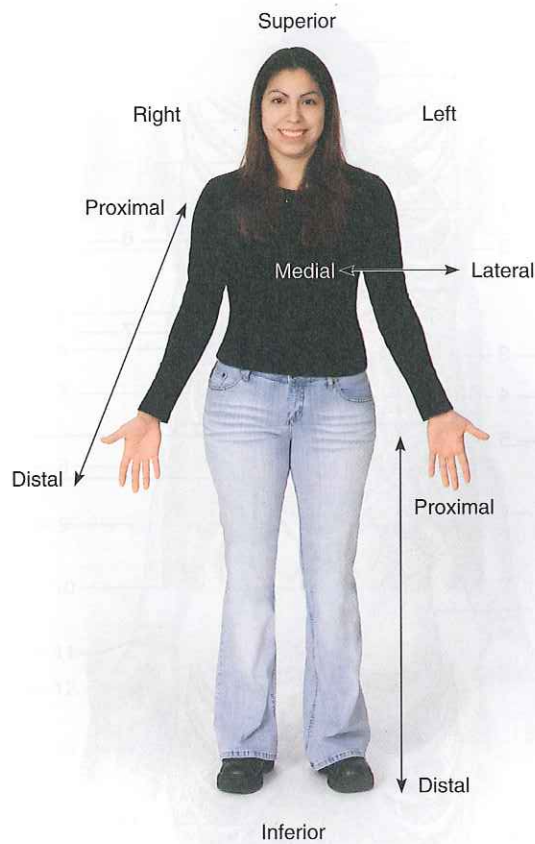
**female reproductive system**

- ovaries
- uterine tubes (oviducts; fallopian tubes)
- uterus
- vagina

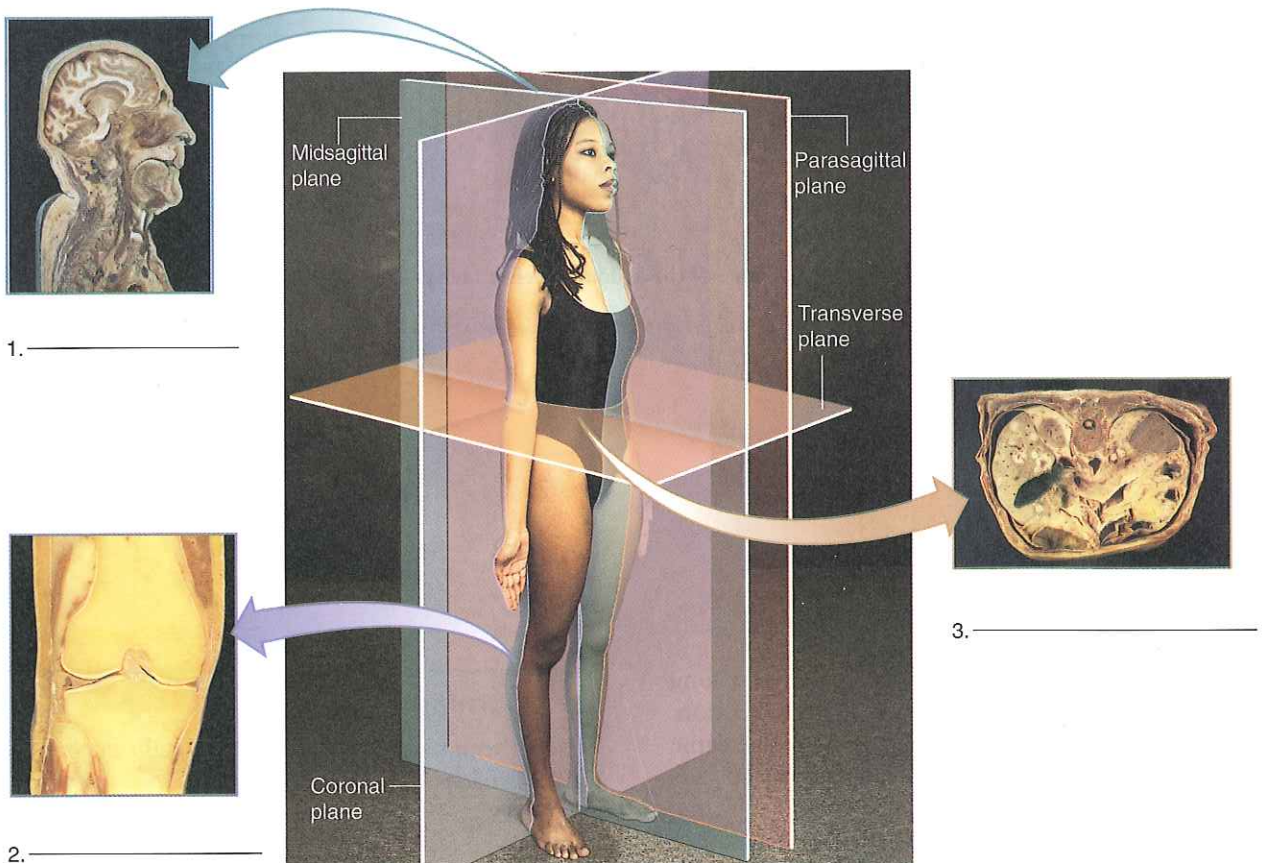
3. Complete Part B of the laboratory report.

**Procedure C—Relative Positions, Planes, Sections, and Regions**

1. Observe the person standing in anatomical position (fig. 2.4). Anatomical terminology assumes the body is in anatomical position even though a person is often observed differently.
2. Review the section entitled “Anatomical Terminology” in chapter 1 of the textbook.
3. As a review activity, label figures 2.5, 2.6, and 2.7.
4. Examine the sectioned specimens on the demonstration table and identify the plane along which

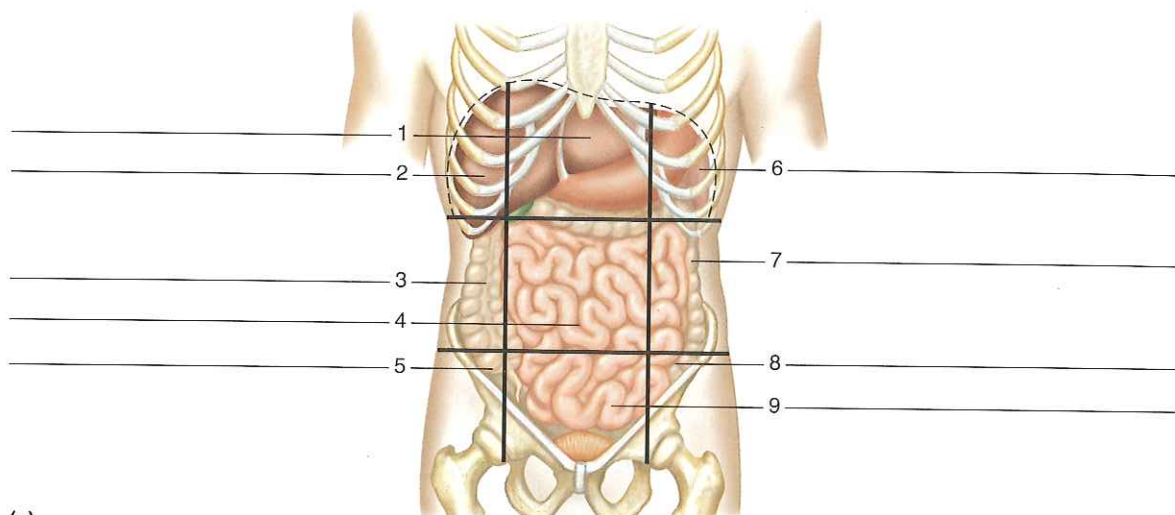


**Figure 2.4** Anatomical position with directional terms indicated. The body is standing erect, face forward, with upper limbs at the sides and palms forward. This results in an anterior view of the body.

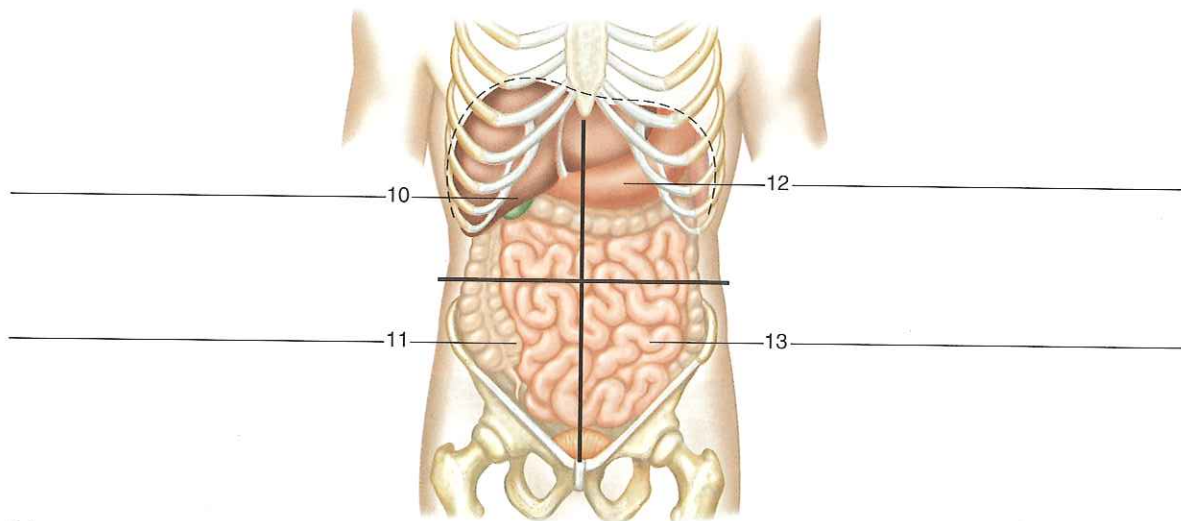


**Figure 2.5** Label the planes represented in this illustration. 5





(a)



(b)

**Figure 2.6** Label (a) the regions and (b) the quadrants of the abdominopelvic cavity. ← 1

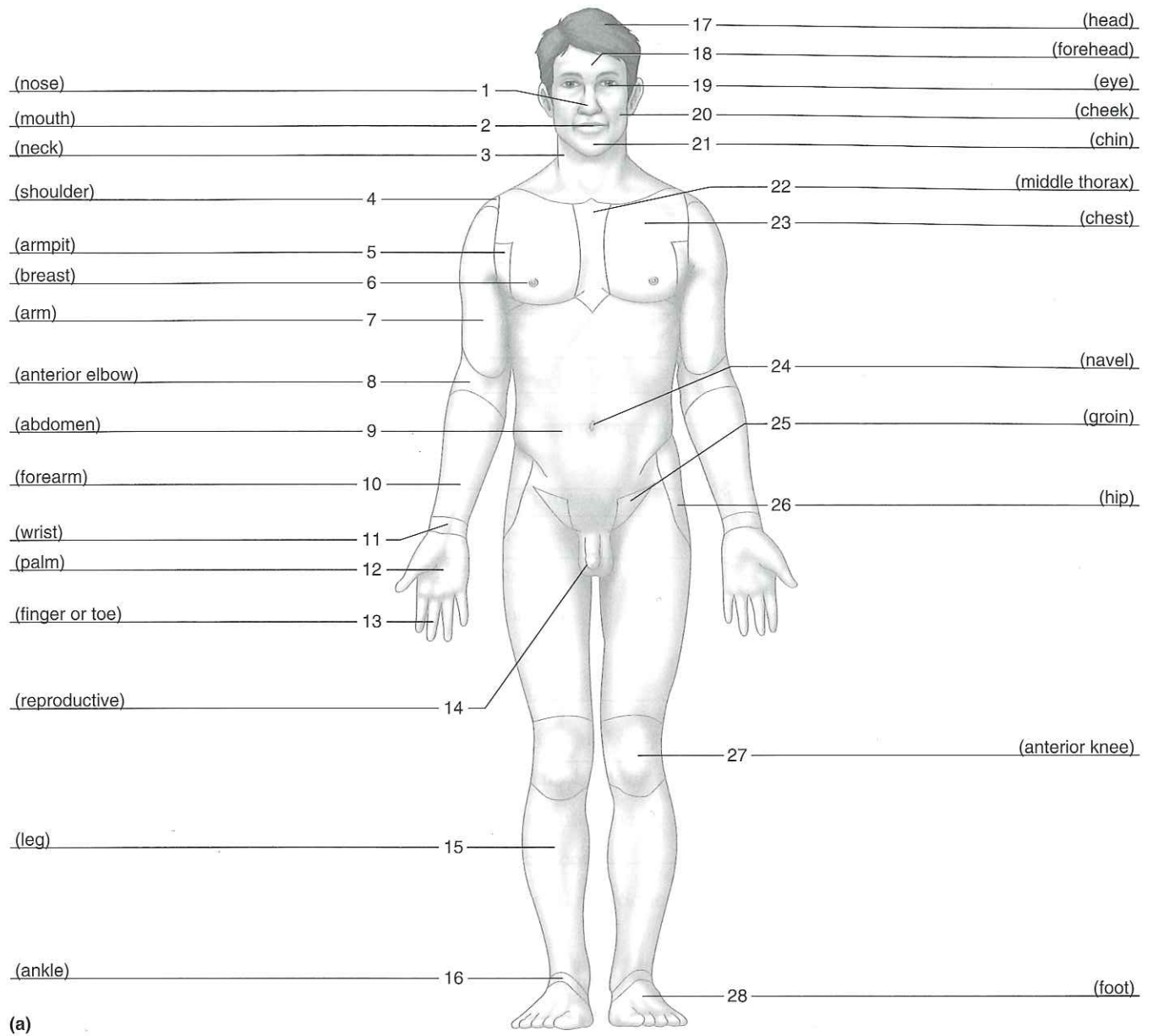
each is cut. Cylindrical structures, such as a long bone or a blood vessel, may be cut in cross section, oblique section, or longitudinal section. The same three sections can be demonstrated by three cuts of a banana (fig. 2.8).

5. Complete Parts C, D, E, and F of the laboratory report.

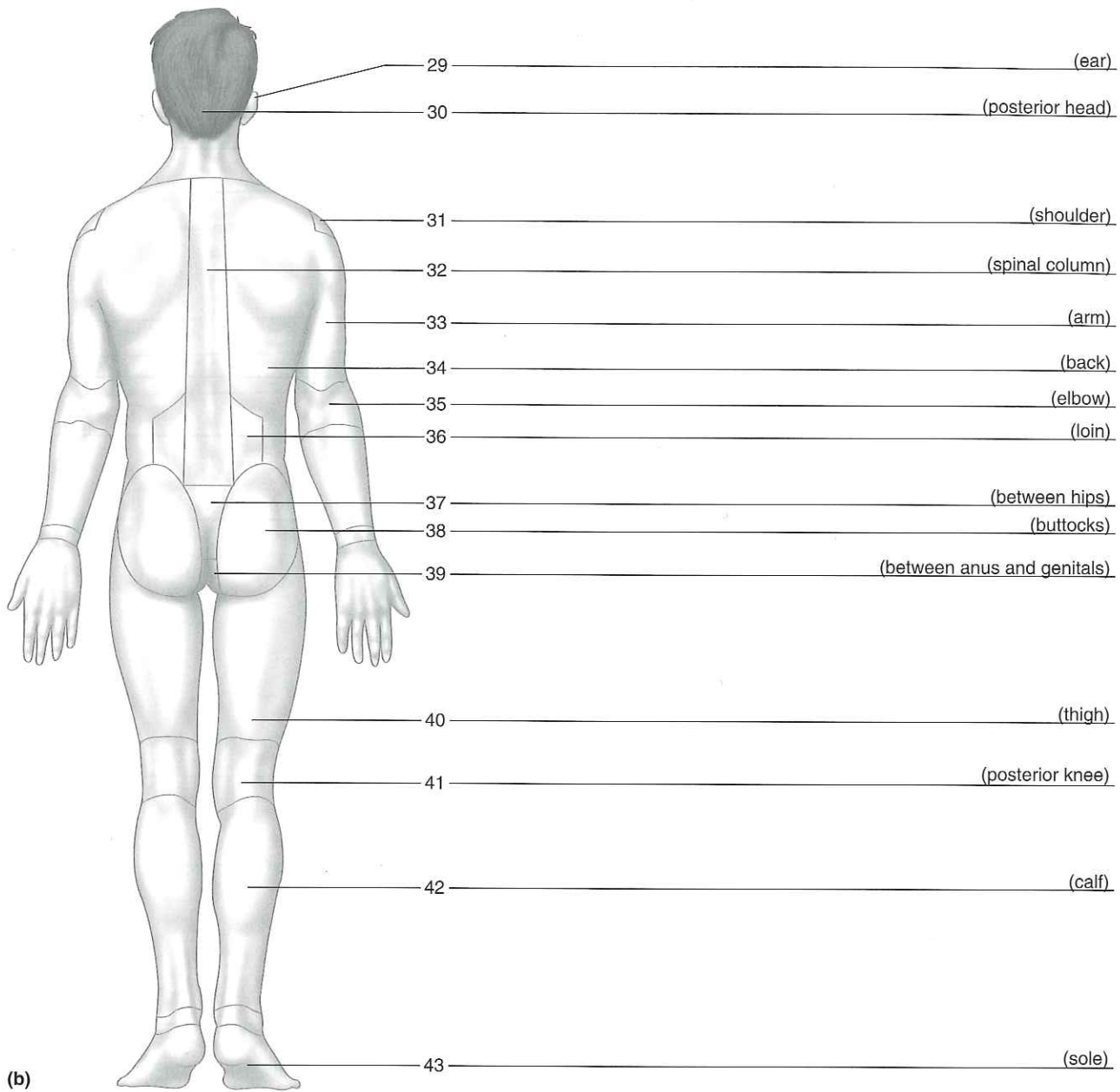


### Learning Extension

Use different colored pencils to distinguish the body regions in figure 2.7.



**Figure 2.7** Label these diagrams with terms used to describe body regions: (a) anterior regions; (b) posterior regions. 6



(b)  
**Figure 2.7** Continued.




**Figure 2.8** Three possible cuts of a banana: (a) cross section; (b) oblique section; (c) longitudinal section. Sections through an organ, as a body tube, frequently produce views similar to the cut banana.



Name \_\_\_\_\_


Date \_\_\_\_\_

Section \_\_\_\_\_

The  corresponds to the indicated outcome(s) found at the beginning of the laboratory exercise.

# Body Organization and Terminology

## Part A Assessments

Match the cavities in column A with the organs contained in the cavities in column B. Place the letter of your choice in the space provided. 

### Column A

- a. Abdominal cavity
- b. Cranial cavity
- c. Pelvic cavity
- d. Thoracic cavity
- e. Vertebral canal (spinal cavity)

### Column B

- \_\_\_\_\_ 1. Liver
- \_\_\_\_\_ 2. Lungs
- \_\_\_\_\_ 3. Spleen
- \_\_\_\_\_ 4. Stomach
- \_\_\_\_\_ 5. Brain
- \_\_\_\_\_ 6. Trachea and esophagus
- \_\_\_\_\_ 7. Urinary bladder
- \_\_\_\_\_ 8. Small intestine
- \_\_\_\_\_ 9. Spinal cord
- \_\_\_\_\_ 10. Internal reproductive organs
- \_\_\_\_\_ 11. Heart
- \_\_\_\_\_ 12. Mediastinum

## Part B Assessments

Match the organ systems in column A with the general functions in column B. Place the letter of your choice in the space provided. 2

### Column A

- a. Cardiovascular system
- b. Digestive system
- c. Endocrine system
- d. Integumentary system
- e. Lymphatic system
- f. Muscular system
- g. Nervous system
- h. Reproductive system
- i. Respiratory system
- j. Skeletal system
- k. Urinary system

### Column B

- \_\_\_\_\_ 1. Main system that secretes hormones
- \_\_\_\_\_ 2. Provides an outer covering
- \_\_\_\_\_ 3. Produces gametes (eggs and sperm)
- \_\_\_\_\_ 4. Stimulates muscles to contract and interprets information from sensory units
- \_\_\_\_\_ 5. Provides a framework for soft tissues and produces blood cells in red marrow
- \_\_\_\_\_ 6. Exchanges gases between air and blood
- \_\_\_\_\_ 7. Transports excess fluid from tissues to blood
- \_\_\_\_\_ 8. Movement via contractions and creates most body heat
- \_\_\_\_\_ 9. Removes liquid wastes from blood and transports them to the outside of the body
- \_\_\_\_\_ 10. Converts food molecules into absorbable forms
- \_\_\_\_\_ 11. Transports nutrients, wastes, and gases throughout the body

## Part C Assessments

Indicate whether each of the following sentences makes correct or incorrect usage of the word in boldface type (assume that the body is in the anatomical position as observed in fig. 2.4). If the sentence is incorrect, in the space provided supply a term that will make it correct. 4

- 1. The mouth is **superior** to the nose.
- 2. The stomach is **inferior** to the diaphragm.
- 3. The trachea is **anterior** to the spinal cord.
- 4. The larynx is **posterior** to the esophagus.
- 5. The heart is **medial** to the lungs.
- 6. The kidneys are **inferior** to the adrenal glands.
- 7. The hand is **proximal** to the elbow.
- 8. The knee is **proximal** to the ankle.
- 9. Blood in **deep** blood vessels gives color to the skin.
- 10. A **peripheral** nerve passes from the spinal cord into the limbs.
- 11. The dermis is the **superficial** layer of the skin.

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## Part D Assessments

Match the body regions in column A with the body parts in column B. Place the letter of your choice in the space provided. 6

### Column A

- a. Antecubital
- b. Axillary
- c. Brachial
- d. Buccal
- e. Carpal
- f. Cephalic
- g. Cervical
- h. Crural
- i. Cubital
- j. Dorsal
- k. Genital
- l. Gluteal

### Column B

- \_\_\_\_\_ 1. Wrist
- \_\_\_\_\_ 2. Reproductive organs
- \_\_\_\_\_ 3. Armpit
- \_\_\_\_\_ 4. Elbow
- \_\_\_\_\_ 5. Buttocks
- \_\_\_\_\_ 6. Back
- \_\_\_\_\_ 7. Neck
- \_\_\_\_\_ 8. Arm
- \_\_\_\_\_ 9. Cheek
- \_\_\_\_\_ 10. Leg
- \_\_\_\_\_ 11. Head
- \_\_\_\_\_ 12. Front of elbow

## Part E Assessments

Match the body regions in column A with the locations in column B. Place the letter of your choice in the space provided. 6

### Column A

- a. Inguinal
- b. Lumbar
- c. Mammary
- d. Occipital
- e. Palmar
- f. Pectoral
- g. Pedal
- h. Pelvic
- i. Perineal
- j. Plantar
- k. Popliteal
- l. Sternal

### Column B

- \_\_\_\_\_ 1. Pelvis
- \_\_\_\_\_ 2. Breasts
- \_\_\_\_\_ 3. Between anus and reproductive organs
- \_\_\_\_\_ 4. Sole
- \_\_\_\_\_ 5. Middle of thorax
- \_\_\_\_\_ 6. Chest
- \_\_\_\_\_ 7. Back of knee
- \_\_\_\_\_ 8. Foot
- \_\_\_\_\_ 9. Lower posterior region of head
- \_\_\_\_\_ 10. Abdominal wall near thigh (groin)
- \_\_\_\_\_ 11. Lower back
- \_\_\_\_\_ 12. Palm





**Critical Thinking Application**

State the quadrant of the abdominopelvic cavity where the pain or sound would be located for each of the six common conditions listed. In some cases, there may be more than one correct answer, and pain is sometimes referred to another region. This phenomenon, called *referred pain*, occurs when pain is interpreted as originating from some area other than the parts being stimulated. When referred pain is involved in the patient's interpretation of the pain location, the proper diagnosis of the ailment is more challenging. For the purpose of this exercise, assume the pain interpretation is originating from the organ involved. ←3

- 1. Stomach ulcer \_\_\_\_\_
- 2. Appendicitis \_\_\_\_\_
- 3. Bowel sounds \_\_\_\_\_
- 4. Gallbladder attack \_\_\_\_\_
- 5. Kidney stone in left ureter \_\_\_\_\_
- 6. Ruptured spleen \_\_\_\_\_