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. In order 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 major body cavities and identify the 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 the body regions and associate the terms used to identify body regions.

EXPLORE

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.

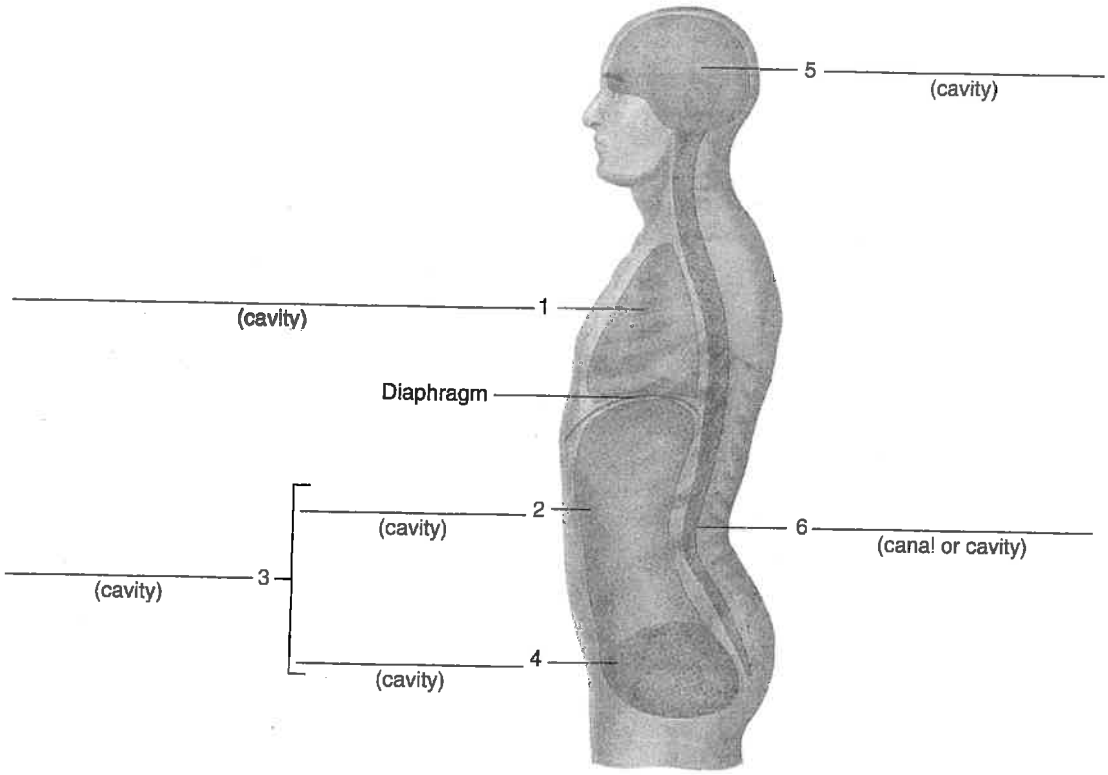


Figure 2.1 Label these body cavities.

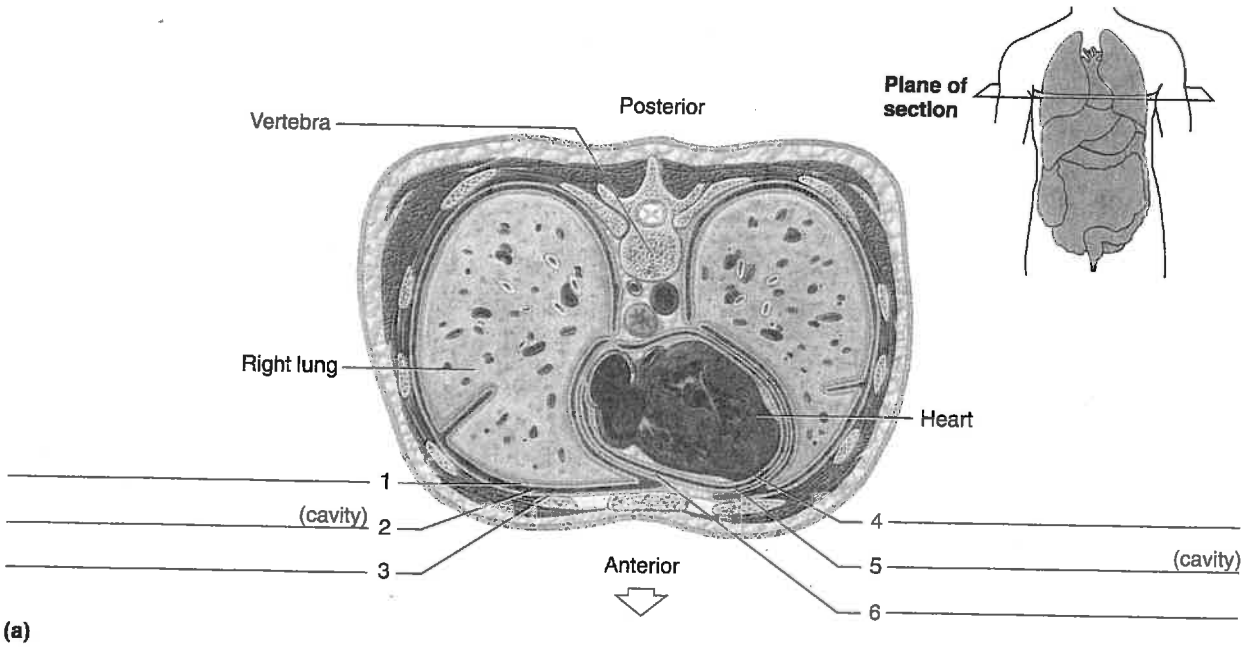
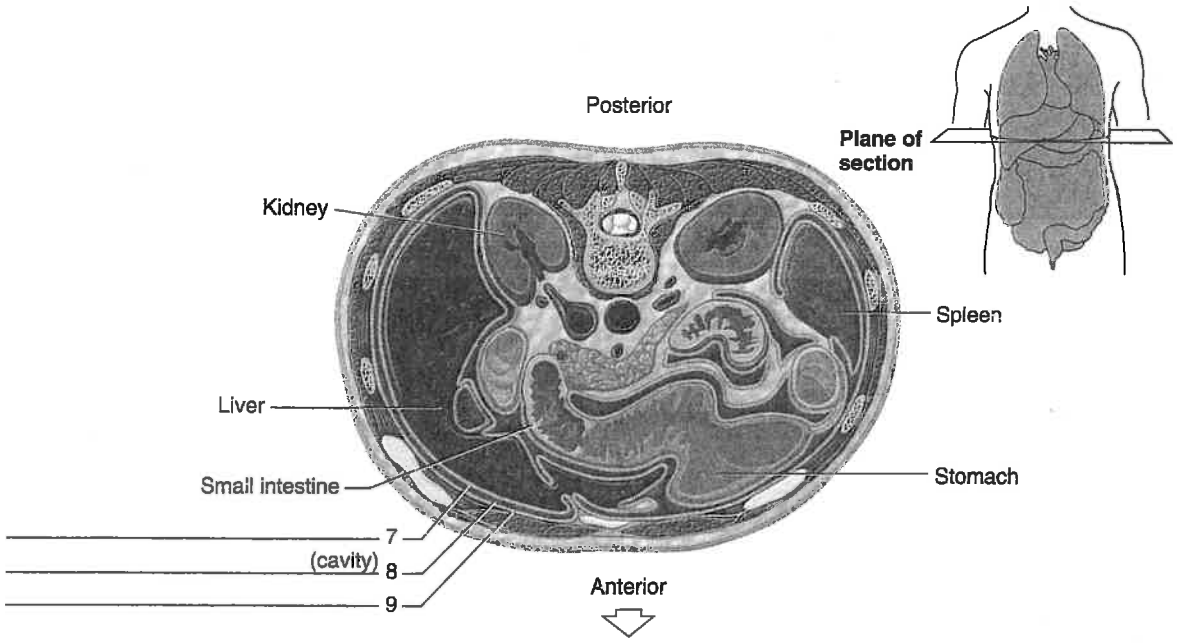


Figure 2.2 Label the thoracic membranes and cavities in (*a*) and the abdominopelvic membranes and cavity in (*b*) as shown in these superior views of transverse sections.



(b)

Figure 2.2 *Continued.*

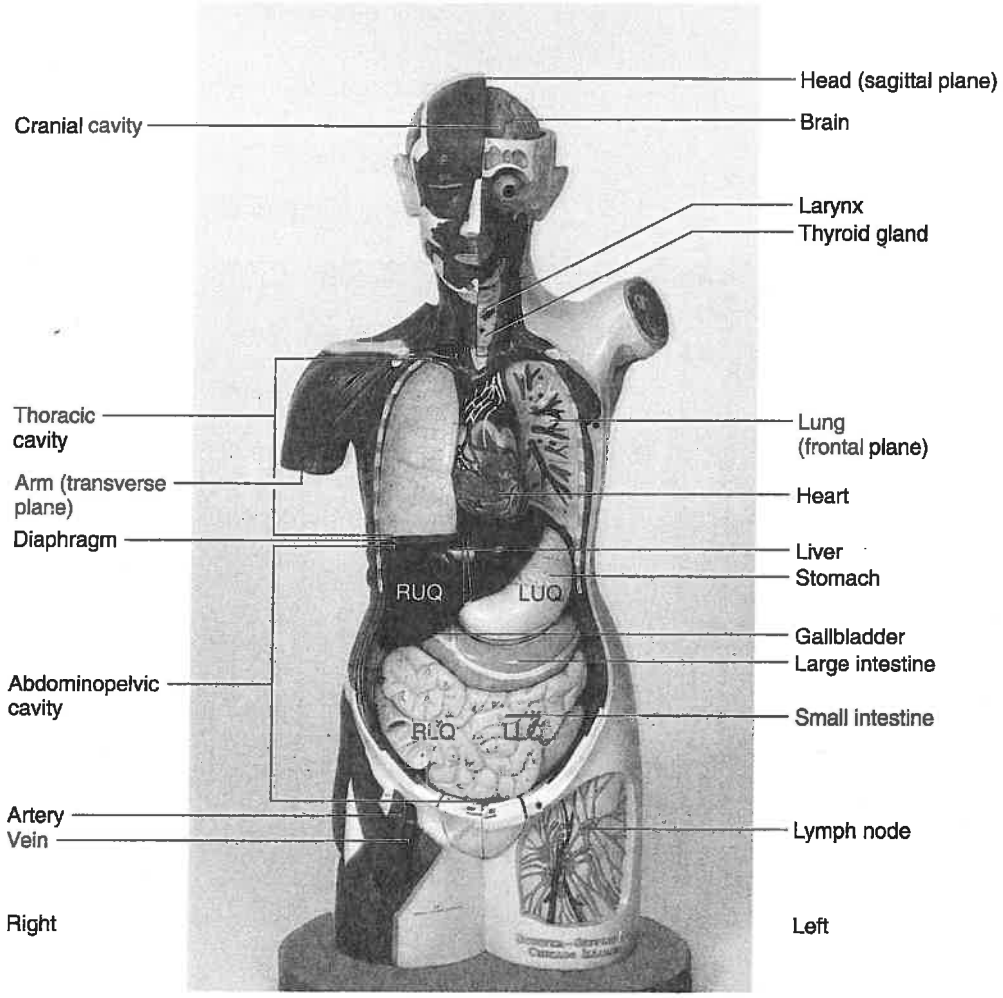


Figure 2.3 Dissectible human torso model with body cavities, abdominopelvic quadrants, body planes, and major organs indicated.

EXPLORE

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 systems and their major organs:

integumentary system
- skin
- accessory organs such as hair and nails

skeletal system
- bones
- ligaments

muscular system
- skeletal muscles
- tendons

nervous system
- brain
- spinal cord
- nerves

endocrine system
- pituitary gland
- thyroid gland
- parathyroid glands
- adrenal glands
- pancreas
- ovaries
- testes
- pineal gland
- 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

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.

EXPLORE

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 each is cut. Cylindrical structures, such as a long bone or a blood vessel, may be cut in cross 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 body regions in figure 2.7.

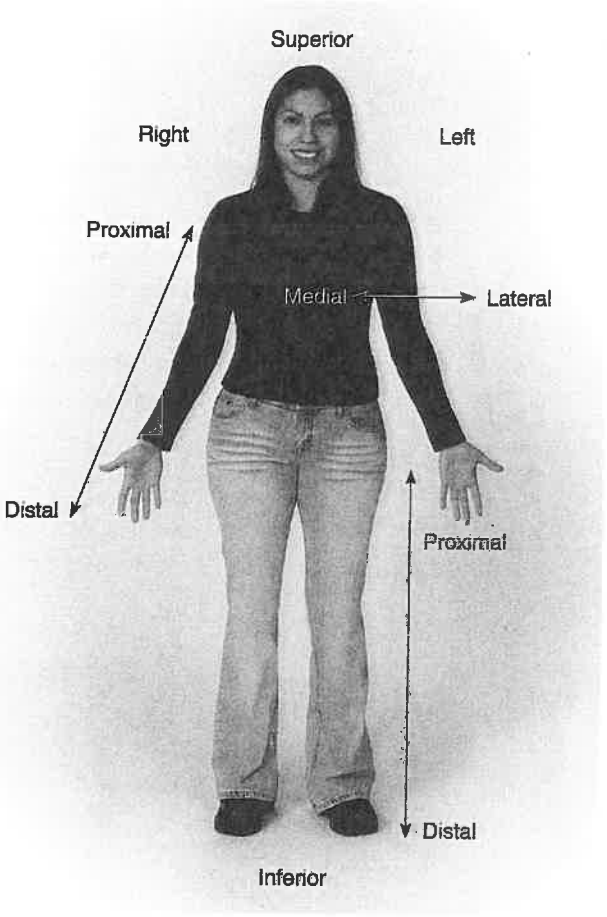


Figure 2.4 Anatomical position with directional terms indicated. The body is standing erect, face forward, with upper limbs at the sides and palms forward. This results in an anterior view of the body.

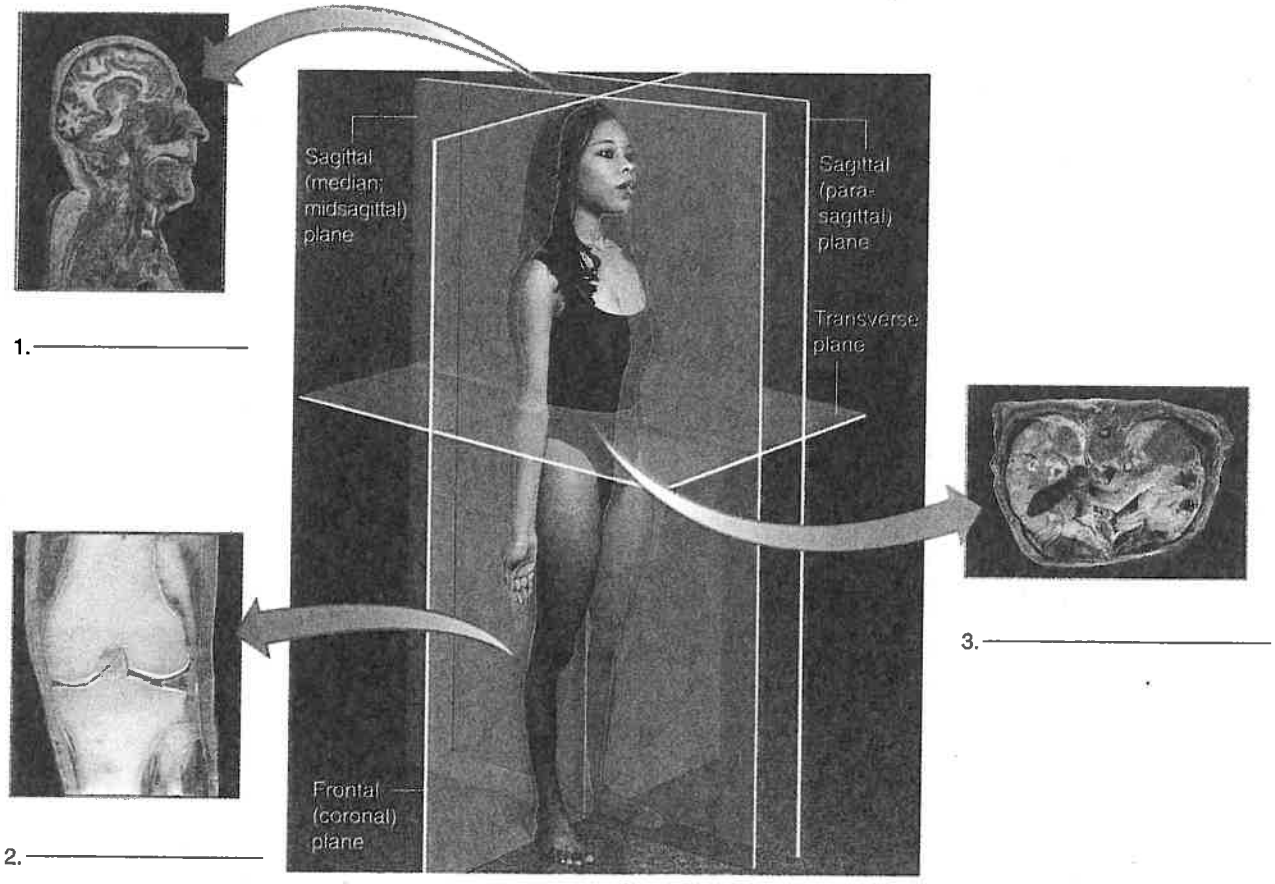
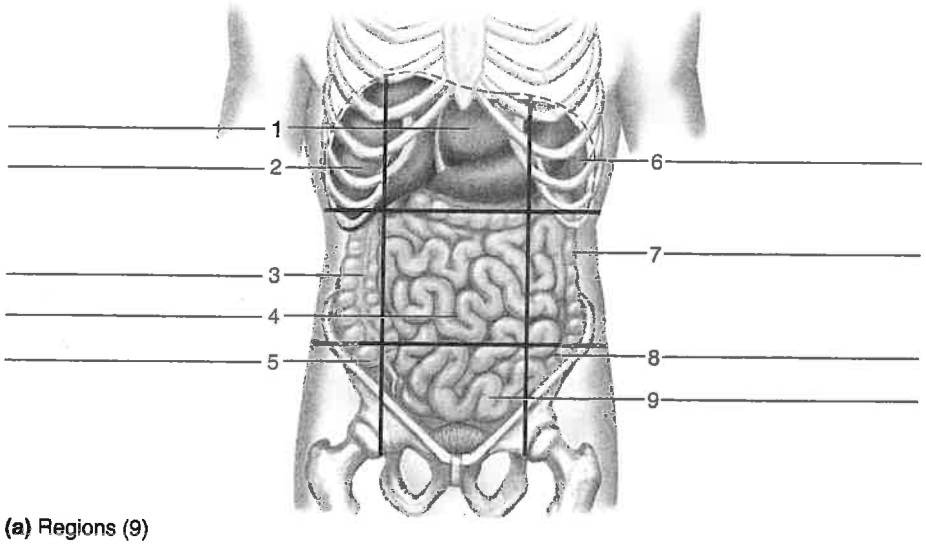
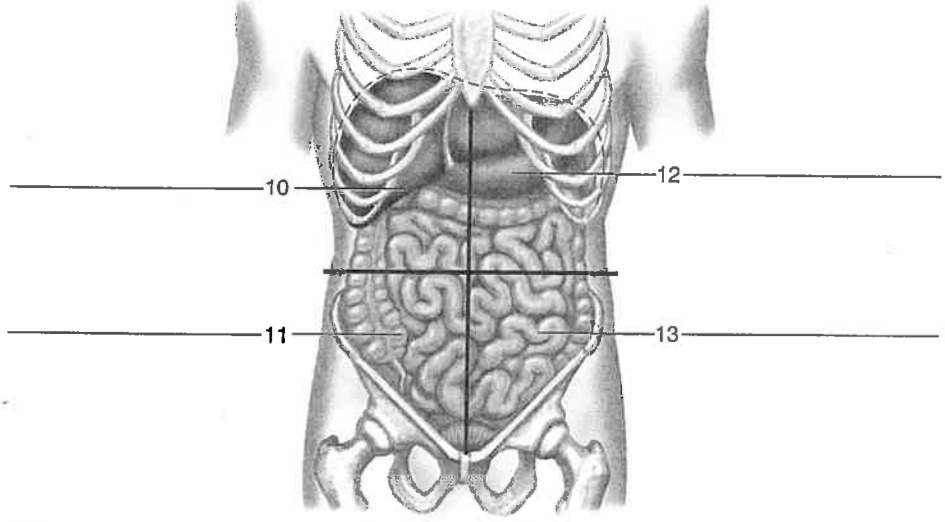


Figure 2.5 Label the planes represented in this illustration.



(a) Regions (9)



(b) Quadrants (4)

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

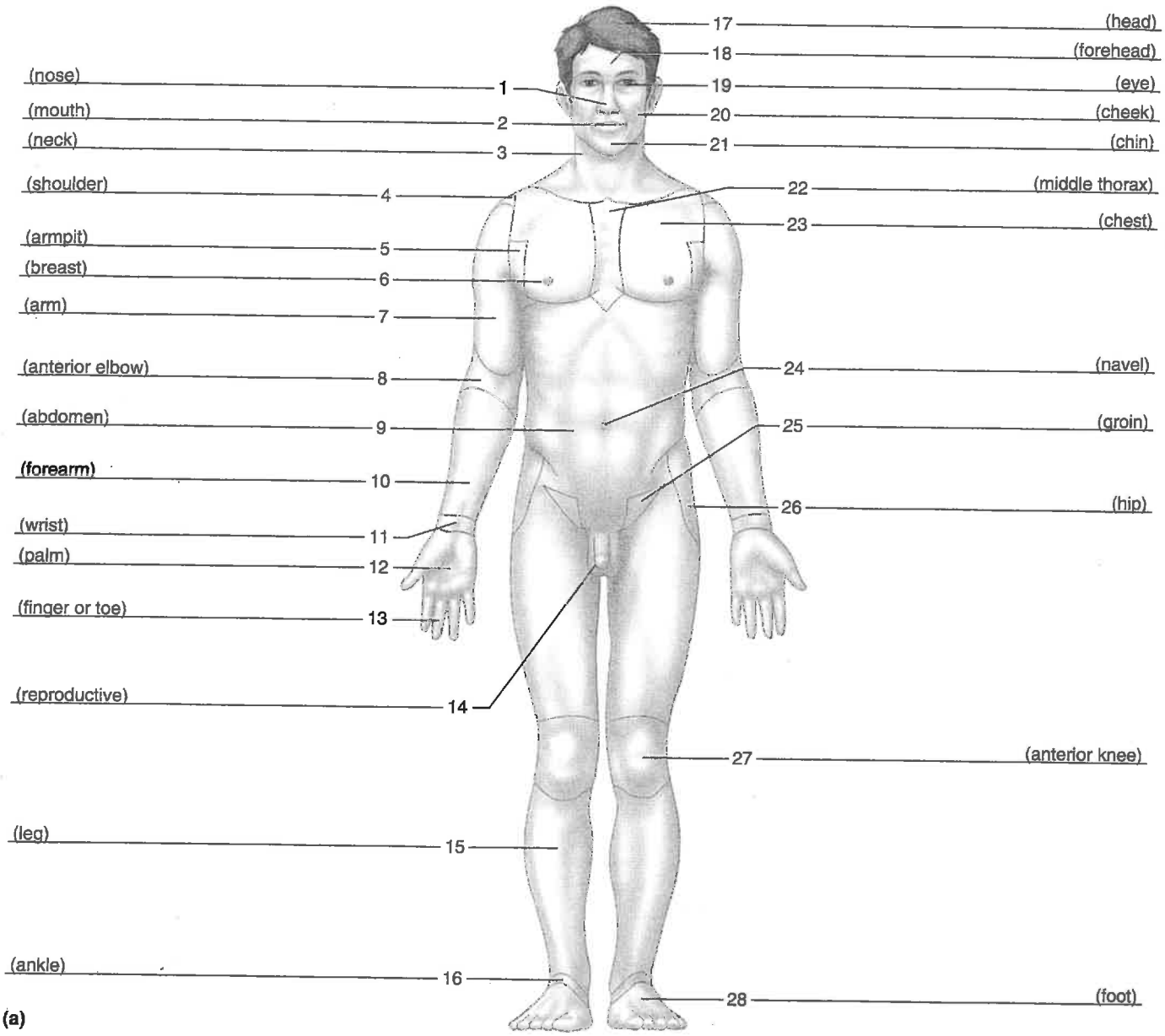


Figure 2.7 Label these diagrams with terms used to describe body regions: (*a*) anterior regions; (*b*) posterior regions.

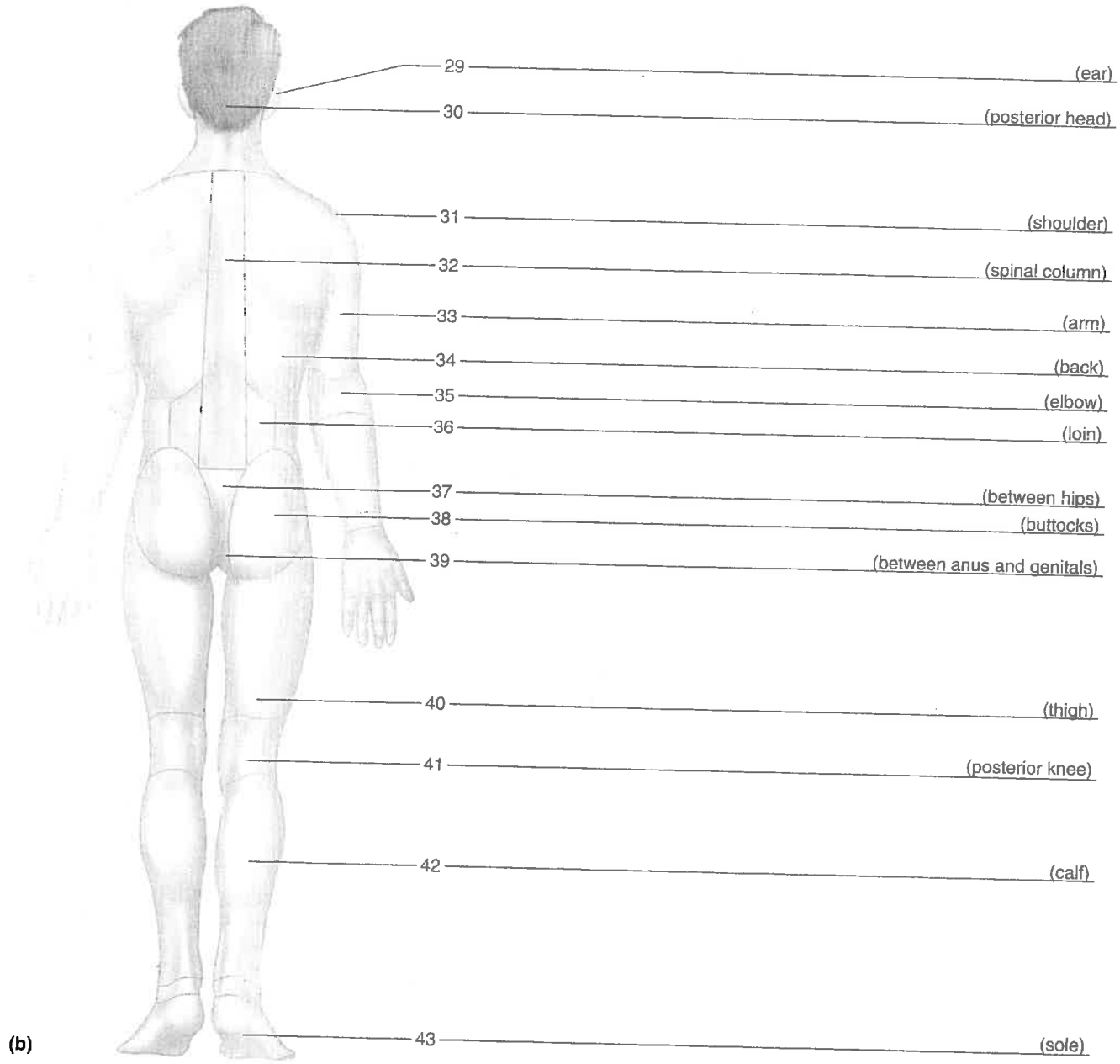


Figure 2.7 *Continued.*

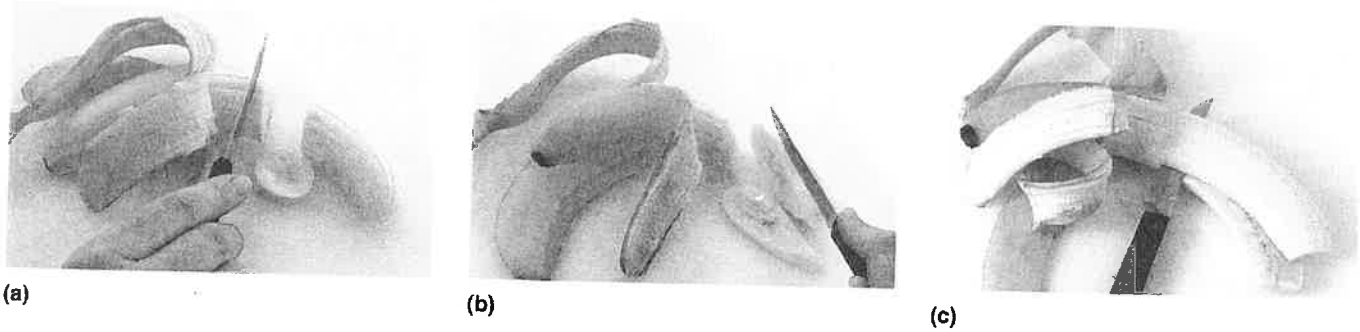


Figure 2.8 Three possible cuts of a banana: (*a*) cross section; (*b*) oblique section; (*c*) longitudinal section. Sections through an organ, as a body tube, frequently produce views similar to the cut banana.