

LABORATORY MANUAL

HOLE'S

HUMAN ANATOMY & PHYSIOLOGY

DAVID SHIER

JACKIE BUTLER

RICKI LEWIS



TERRY R. MARTIN

**Mc
Graw
Hill**

**WCB
McGraw-Hill**

SEVENTH
EDITION

HOLE'S
**HUMAN ANATOMY
& PHYSIOLOGY**

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Boston, Massachusetts Burr Ridge, Illinois Dubuque, Iowa
Madison, Wisconsin New York, New York San Francisco, California St. Louis, Missouri

WCB/McGraw-Hill

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ISBN 0-697-20961-X

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Some of the laboratory experiments included in this text may be hazardous if materials are handled improperly or if procedures are conducted incorrectly. Safety precautions are necessary when you are working with chemicals, glass test tubes, hot water baths, sharp instruments, and the like, or for any procedures that generally require caution. Your school may have set regulations regarding safety procedures that your instructor will explain to you. Should you have any problems with materials or procedures, please ask your instructor for help.

Printed in the United States of America

10 9 8 7 6 5 4 3

PREFACE

The *Laboratory Manual for Hole's Human Anatomy and Physiology* was prepared to be used with the textbook *Hole's Human Anatomy and Physiology*, 7th edition, by David Shier, Jackie Butler, and Ricki Lewis. As with the textbook, the laboratory manual is designed for students with minimal backgrounds in the physical and biological sciences who are pursuing careers in allied health fields.

The laboratory manual contains sixty-two laboratory exercises and sixty-one reports, which are integrated closely with the chapters of the textbook. The exercises are planned to illustrate and review anatomical and physiological facts and principles presented in the textbook and to help students investigate some of these ideas in greater detail.

Often the laboratory exercises are short or are divided into several separate procedures. This allows an instructor to select those exercises or parts of exercises that will best meet the needs of a particular program. Also, exercises requiring a minimal amount of laboratory equipment have been included.

The laboratory exercises include a variety of special features that are designed to stimulate interest in the subject matter, to involve students in the learning process, and to guide them through the planned activities. These special features include the following:

MATERIALS NEEDED

This section lists the laboratory materials that are required to complete the exercise and to perform the demonstrations and optional activities.

SAFETY

A list of safety guidelines is included inside the front cover. Each lab session that requires special safety guidelines has a safety section following Materials Needed. Your instructor might require some modifications of these guidelines.

INTRODUCTION

The introduction briefly describes the subject of the exercise or the ideas that will be investigated.

PURPOSE OF THE EXERCISE

The purpose provides a statement concerning the intent of the exercise—that is, what will be accomplished.

LEARNING OBJECTIVES

The learning objectives list in general terms what a student should be able to do after completing the exercise.

PROCEDURE

The procedure provides a set of detailed instructions for accomplishing the planned laboratory activities. Usually these instructions are presented in outline form so that a student can proceed through the exercise in stepwise fashion. Frequently, the student is referred to particular sections of the textbook for necessary background information or for review of subject matter presented previously.

The procedures include a wide variety of laboratory activities and, from time to time, direct the student to complete various tasks in the laboratory reports.

LABORATORY REPORTS

A laboratory report to be completed by the student immediately follows each exercise. These reports include various types of review activities, spaces for sketches of microscopic objects, charts for recording observations and experimental results, and questions dealing with the analysis of such data.

It is hoped that as a result of these activities, students will develop a better understanding of the structural and functional characteristics of their bodies and will increase their skills in gathering information by observation and experimentation. Some of the exercises also include demonstrations, optional activities, and useful illustrations.

DEMONSTRATIONS

Demonstrations appear in separate boxes. They describe specimens, specialized laboratory equipment, or other materials of interest that an instructor may want to display to enrich the student's laboratory experience.

OPTIONAL ACTIVITIES

Optional activities also appear in separate boxes. They are planned to encourage students to extend their laboratory experiences. Some of these activities are open-ended in that they suggest that the student plan an investigation or experiment and carry it out after receiving approval from the laboratory instructor.

ILLUSTRATIONS

Diagrams from the textbook and diagrams similar to those in the textbook often are used as aids for reviewing subject matter. Other illustrations provide visual instructions for performing steps in procedures or are used to identify parts of instruments or specimens. Micrographs are included to help students identify microscopic structures or to evaluate student understanding of tissues.

In some exercises, the figures include line drawings that are suitable for students to color with colored pencils. This activity may motivate students to observe the illustrations more carefully and help them to locate the special features represented in the figures. Students can check their work by referring to the corresponding full-color illustrations in the textbook.

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to all users of the laboratory manual who provided suggestions for its improvement. I am especially grateful for the contributions of Chris Christopher, *Santa Rosa Junior College*, Drusilla B. Jolly, *Forsyth Technical Community College*, Kevin C. Lyon, *Jones County Junior College*, Veena Sallan, *Owensboro Community College*, Clarence C. Wolfe, *Northern Virginia Community College*, The Scope Shoppe, *Elburn, IL*, who kindly reviewed the manual and examined the manuscript of the new edition. Their thoughtful comments and valuable suggestions are greatly appreciated.

FEATURES NEW TO THIS EDITION

This new edition of the laboratory manual has been made more user-friendly. Many of the changes are a result of evaluations and suggestions from anatomy and physiology students. Numerous suggestions from users of the sixth edition, and reviewers of the seventh edition, have been incorporated. The most notable changes include the following:

1. To meet the need for clearer and more definite safety guidelines, a safety list has been included inside the front cover, and safety sections have been added to the appropriate labs.
2. A section called Study Skills for Anatomy and Physiology has been added to the front material. This

- section was written by students enrolled in a Human Anatomy and Physiology course.
- The Materials Needed section has been moved to the beginning of the laboratory exercise to enable greater ease for laboratory preparations.
 - Many of the leader lines on the figures have been improved by using more brackets for regional labels and enhanced for clarity. All of the X-ray labels have been clarified.
 - The microscope laboratory exercise has been updated with typical equipment utilized at many colleges. Instructions for student care of microscopes has been included to reduce repair and maintenance costs.
 - The sequence of exercises has been modified to correspond to the seventh edition of the textbook.
 - More data collection has been included. Examples include Laboratory Exercises 4 and 36.
 - Several of the reference plates of the cat dissection have been replaced, and additional labels have been included.
 - The second color has been changed to enhance the clarity of the illustrations. Additional color has been included for blood cell identification and color-blindness reference plates.
 - The *Instructor's Manual for Laboratory Manual to Accompany Hole's Human Anatomy and Physiology* has been revised and updated. Frame numbers for additional Slice of Life VI images are included.
 - Two assessment tools (rubrics) for laboratory reports have been developed and included in Appendix 2.
 - A supplement of four computerized physiology labs with laboratory reports using Intelitool products is available.
 - Barcodes and frame numbers that correspond to images from the Slice of Life VI (and future revisions) videodisc are included for many laboratory exercises. This enables review and enrichment of some of the laboratory material.

Images From Slice of Life VI

- Laboratory Exercise 3: Cellular Structure
Mitochondrion
Endoplasmic reticulum and ribosomes
Golgi apparatus
Cilia and microtubules
Cells, squamous epithelium
- Laboratory Exercise 5: The Cell Cycle
Metaphase
Early anaphase
Late anaphase and cytokinesis

- Laboratory Exercise 6: Epithelial Tissues
Epithelium, simple squamous
Epithelium, simple cuboidal
Epithelium, stratified squamous
Epithelium, ciliated pseudostratified columnar
Epithelium, simple columnar, ileum
Epithelium, transitional
- Laboratory Exercise 7: Connective Tissues
Loose fibrous connective tissue
Dense fibrous connective tissue, regular, tendon
Reticular connective tissue
Cartilage, elastic
Fibrocartilage
Cartilage, hyaline
Adipose tissue
Bone tissue
Blood tissue
- Laboratory Exercise 8: Muscle and Nervous Tissues
Skeletal muscle
Skeletal muscle, enlarged
Skeletal muscle, cross section
Smooth muscle, longitudinal section
Cardiac muscle
Neuron and neuroglia
- Laboratory Exercise 9: Integumentary System
Skin, model
Skin, epidermis
Melanin in skin
Skin, thick, stratum basale
Skin, sweat gland
Skin, hair structures
Skin layers and fascia, arm
Pacinian corpuscle, model
Meissner's corpuscle, model
- Laboratory Exercise 12: The Skull
Skull, anterolateral view
Skull, lateral view, left
Skull, frontal view
Skull, inferior view with mandible
Skull, sutures
Fontanelles
Skull, superior view of cranial floor
Orbital bones
Cranium, anterior, disarticulated
Cranium, lateral, disarticulated
Sphenoid bone, anterior view
Sella turcica, X-ray
Ethmoid bone, anterior view
Ethmoid bone, superior view
Ossicles
- Laboratory Exercise 13: Vertebral Column and Thoracic Cage
Cervical vertebrae, posterior view
Axis
Thoracic cage
Sacrum and coccyx, posterior view
- Laboratory Exercise 14: Pectoral Girdle and Upper Limb
Shoulder girdle, anterior view
Shoulder girdle, posterior view
Upper limb bones, posterior view
Elbow joint, posterior view
Hand, anterior view
Hand, X-ray
- Laboratory Exercise 15: Pelvic Girdle and Lower Limb
Coxal bone, lateral view
Pelvis, inlet
Foot bones, inferior view
Pelvic girdle and proximal femur, X-ray
Foot, X-ray
- Laboratory Exercise 20: Muscles of the Face, Head, and Neck
Facial muscles, model

- Facial muscles
Muscles of face and neck
Muscles of the head and neck, lateral view
- Laboratory Exercise 21: Muscles of the Chest, Shoulder, and Upper Limb
Torso, posterior view
Torso, anterior view
Back muscles
Shoulder muscles
Shoulder muscles
Chest muscles
Upper limb model, anterior view
Upper limb model, posterior view
- Laboratory Exercise 22: Muscles of the Deep Back, Abdominal Wall, and Pelvic Outlet
Torso, posterior view
Torso, anterior view
Back muscles
Abdominal wall muscles
- Laboratory Exercise 23: Muscles of the Hip and Lower Limb
Hip muscles with sciatic nerve, model
Hip and thigh muscles, posterior view
Thigh muscles, anterior view
Torso, deep abdominal
Iliopsoas group
Lower limb, anterior view, model
Lower limb, lateral view, model
Lower limb, posterior view, model
Lower limb, medial view, model
- Laboratory Exercise 25: Nervous Tissue
Neuron and neuroglia
Oligodendrocyte
Microglia
Astrocyte
Ependymal cells
Purkinje cells
Schwann cells
Node of Ranvier
Neuromuscular junction
- Laboratory Exercise 28: The Meninges and Spinal Cord
Dura mater over spinal cord, cervical
Arachnoid mater over spinal cord
Pia mater over spinal cord
Spinal cord, gray matter
Dorsal and ventral roots, model
Dorsal roots, spinal cord, and dura mater
- Laboratory Exercise 29: The Brain and Cranial Nerves
Brain, dura mater present
Dura mater, partly removed
Brain, ventral surface
Cranial nerves I–XII
Brain, right lateral surface
Brain, midsagittal view, right
Thalamus, brain stem, midsagittal
Brain stem and cerebellum
Choroid plexus
Third ventricle, section
- Laboratory Exercise 32: Senses of Smell and Taste
Olfactory epithelium
Taste buds
Taste buds, enlarged
- Laboratory Exercise 33: The Ear and Hearing
Ear divisions
Tympanic membrane, otoscopic view
Auditory tube
Inner ear, model
Cochlea, section
Cochlear nerve and cochlea
Organ of Corti
- Laboratory Exercise 35: The Eye
Eye muscles, model, lateral view
Eye muscles, posterior view
Eye model, anterior view

- Eye, longitudinal section
- Retina
- Photoreceptor cells
- Laboratory Exercise 37: Endocrine System
 - Pituitary attached to ventral brain
 - Pituitary, anterior and posterior
 - Pituitary, anterior lobe
 - Pituitary, posterior lobe
 - Thyroid gland
 - Thyroid gland, unfixed
 - Parathyroid gland
 - Parathyroid gland, oxyphil cell
 - Islets of Langerhans
 - Adrenal gland, cortex
 - Adrenal gland, medulla
 - Adrenal gland, unfixed
 - Pineal gland
- Laboratory Exercise 38: Blood Cells
 - Red blood cells, platelets, and neutrophil
 - Neutrophil, band form
 - Neutrophil, segmented form
 - Eosinophil
 - Basophil
 - Lymphocyte
 - Monocyte
- Laboratory Exercise 41: Structure of the Heart
 - Pericardium
 - Heart, anterior view
 - Coronary arteries
 - Heart, four chambers
 - Heart, comparison of ventricle walls
 - Aortic valve
 - Pulmonary artery and valve
 - Pulmonary arteries and veins
 - Heart valves, all four
 - Tricuspid valve
 - Foramen ovale, patent with probe
- Laboratory Exercise 42: The Cardiac Cycle
 - S-A node
 - Bundle branches
 - Purkinje fibers
- Blood flow in heart chambers, model
- ECG, normal
- ECG, P-R interval
- ECG, QRS duration
- Laboratory Exercise 44: Blood Vessels
 - Artery, cross section
 - Capillary
 - Valve in vein
- Laboratory Exercise 48: Lymphatic System
 - Thoracic duct
 - Lymphatic vessel with valve
 - Cervical nodes, illustration
 - Lymph node, micrograph
 - Thymus gland, micrograph
 - Spleen, micrograph
- Laboratory Exercise 49: Organs of the Digestive System
 - Parotid gland, micrograph
 - Esophagus, barium swallow, X-ray
 - Esophagus, stomach, and duodenum
 - Rugae, stomach
 - Pancreas, unfixed
 - Pancreas, micrograph
 - Liver, unfixed
 - Gallbladder
 - Villus, small intestine, micrograph
 - Cecum and appendix
 - Appendix, section, micrograph
 - Large intestinal wall, micrograph
- Laboratory Exercise 52: Organs of the Respiratory System
 - Mediastinum and lungs
 - Bronchi and lungs with lobes, posterior, model
 - Larynx, anterior, model
 - Larynx, posterior, model
 - Thyroid and cricoid cartilages and hyoid bone
 - Respiratory epithelium, trachea
 - Lung tissue
 - Alveolus
- Laboratory Exercise 56: Structure of the Kidney
 - Kidney, model
 - Kidney
 - Kidney, coronal cut
 - Kidney, cortex and medulla, micrograph
 - Kidney, cortex, micrograph
 - Nephron, model
 - Nephron, model, enlarged
- Laboratory Exercise 57: Urinalysis
 - Epithelial cells, urinalysis
 - Hyaline cast, urinalysis
 - Cast, granular
 - Cystinuria, crystals of cystine
 - Uric acid crystal in acute gout
- Laboratory Exercise 59: Male Reproductive System
 - Male reproductive model
 - Male reproductive model
 - Testes, unfixed
 - Prostate gland, unfixed
 - Seminiferous tubule, micrograph
 - Interstitial cells, micrograph
 - Epididymis, micrograph
- Laboratory Exercise 60: Female Reproductive System
 - Female reproductive model
 - Female reproductive organs, unfixed
 - Ovary and uterine tube, unfixed
 - Secondary follicle
 - Mature follicle with oocyte
 - Uterine tube, cross section
 - Endometrium
- Laboratory Exercise 62: Fertilization and Early Development
 - Fetus, gravid uterus
 - Placenta
 - Fetus, placenta, and amniochorionic membrane

ABOUT THE AUTHOR

This seventh edition introduces Terry R. Martin of Kishwaukee College as a new author. Terry's teaching experience of over twenty-nine years, his interest in students and love for college teaching, and his innovative attitude and appreciation for technology based learning enhance the solid tradition of John Hole's laboratory manual. Among his awards are the 1972 Kishwaukee College Outstanding Educator, 1977 Phi Theta Kappa Outstanding Instructor Award, and 1989 Kishwaukee

College ICCTA Outstanding Educator Award. Terry's professional memberships include the National Association of Biology Teachers, Illinois Association of Community College Biologists, Human Anatomy and Physiology Society, Chicago Area Anatomy and Physiology Society (founding member), Phi Theta Kappa (honorary member), DeKalb County Prairie Stewards, and Nature Conservancy. In addition to writing many publications, he co-produced with Hassan Rastegar a

videotape entitled *Introduction to the Human Cadaver and Dissection*, published by Wm. C. Brown Publishers in 1989. During 1994, Terry was a faculty exchange member in Ireland. He has also been involved in his community, most notably as District Commissioner for Boy Scouts of America. We are pleased to have Terry continue the tradition of John Hole's laboratory manual.

The Editor.

TO THE STUDENT

The exercises in this laboratory manual will provide you with opportunities to observe various anatomical parts and to investigate certain physiological phenomena. Such experiences should help you relate specimens, models, microscope slides, and your own body to what you have learned in the lecture and read about in the textbook.

The following list of suggestions may help to make your laboratory activities more effective and profitable.

1. Prepare yourself before attending the laboratory session by reading the assigned exercise and reviewing the related sections of the textbook. It is important to have some understanding of what will be done in the laboratory before you come to class.
2. Bring your laboratory manual and textbook to each laboratory session. These books are closely integrated and will help you complete most of the exercises.
3. Be on time. During the first few minutes of the laboratory meeting, the instructor often will provide verbal instructions. Make special note of any changes in materials to be used or procedures to be followed. Also listen carefully for information concerning special techniques to be used and precautions to be taken.
4. Keep your work area clean and your materials neatly arranged so that you can locate needed items quickly. This will enable you to proceed efficiently and will reduce the chances of making mistakes.
5. Pay particular attention to the purpose of the exercise, which states what you are to accomplish in general terms, and to the learning objectives, which list what you should be able to do as a result of the laboratory experience. Then, before you leave the class, review the objectives and make sure that you can meet them.
6. Follow the directions in the procedure precisely and proceed only when you understand them clearly. Do not improvise procedures unless you have the approval of the laboratory instructor. Ask questions if you do not understand exactly what you are supposed to do and why you are doing it.

7. Handle all laboratory materials with care. These materials often are fragile and expensive to replace. Whenever you have questions about the proper treatment of equipment, ask the instructor.
8. Treat all living specimens humanely and try to minimize any discomfort they might experience.
9. Although at times it will be necessary for you to work with a laboratory partner, try to remain independent when you are making observations, drawing conclusions, and completing the activities in the laboratory reports.
10. Record your observations immediately after making them. In most cases, such data can be entered in spaces provided in the laboratory reports.
11. Read the instructions for each section of the laboratory report before you begin to complete it. Think about the questions before you answer them. Your responses should be based on logical reasoning and phrased in clear and concise language.
12. At the end of each laboratory period, clean your work area and the instruments you have used. Return all materials to their proper places and dispose of wastes, including glassware or microscope slides that have become contaminated with human blood or body fluids, as directed by the laboratory instructor. Wash your hands thoroughly before leaving the laboratory.

STUDY SKILLS FOR ANATOMY AND PHYSIOLOGY

My students have found that certain study skills worked well for them while enrolled in Human Anatomy and Physiology. Although each individual has a somewhat different learning style, there are techniques that work well for the majority of students. Utilizing some of the skills listed here could make your course more enjoyable and rewarding.

1. **Note taking:** Look for the main ideas and express them briefly in your own words. Organize, edit, and review your notes soon after the lecture. Add textbook information to your notes as you reorganize them.

Underline or highlight with different colors the important points, major headings, and key terms. Study your notes daily, as they provide sequential building blocks of the course content.

2. **Chunking:** Organize information into logical groups or categories. Study and master one chunk of information at a time. For example, study the bones of the upper limb, lower limb, trunk, and head as separate study tasks.
3. **Mnemonic devices:** An acrostic is a combination of association and imagery to aid your memory. It is often in the form of a poem, rhyme, or jingle in which the first letter of each word corresponds to the first letters of the words you need to remember. **So Long Top Part, Here Comes The Thumb** is an example of such a mnemonic device to remember the eight carpals in the correct sequence. Acronyms are words that are formed by the first letters of the items to remember. IPMAT is an example of this type of mnemonic device to help remember the phases of the cell cycle in the correct sequence. Try some of your own.
4. **Study groups:** Small study groups that meet periodically to review course material and compare notes have helped and encouraged many students. However, keep the group on the task at hand. Work as a team and alternate leaders. This group often becomes a support group.
5. **Recording and recitation:** An auditory learner can benefit by recording lectures and review sessions with a cassette recorder. Many students listen to the taped sessions as they drive or just before going to bed. Reading your notes aloud can help also. Explain the material to anyone (even if there are no listeners). Talk about anatomy and physiology in everyday conversations.
6. **Note cards/flash cards:** Make your own. Add labels and colors to enhance the material. Keep them with you in your pocket or purse. Study them frequently and for short periods of time. Concentrate on a small number of cards at one time. Shuffle your cards and have someone quiz you on their content. As you become familiar with the material, you can set aside cards that don't require additional mastery.

7. **Time management:** Prepare a monthly, weekly, and daily schedule. Include dates of quizzes, exams, and projects on the calendar. On your daily schedule, budget several short study periods. Daily repetition alleviates cramming for exams. Prioritize your time so that you still have time for work and leisure activities. Find an appropriate study atmosphere with minimum distractions.

Best wishes on your anatomy and physiology endeavor.

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LABORATORY EXERCISE 1

BODY ORGANIZATION AND TERMINOLOGY

MATERIALS NEEDED:

dissectible torso (manikin)
variety of specimens or models sectioned along various planes

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 OBJECTIVES

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. name the organ systems of the human organism;
3. list the organs included within each system and locate the organs in a dissectible torso;
4. describe the general functions of each system;
5. define the terms used to describe the relative positions of body parts;
6. define the terms used to identify body sections and identify the plane along which a particular specimen is cut;
7. define 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 1.1, 1.2, and 1.3.
3. Locate the following features on the reference plates on pages 29–35 of the textbook and on the dissectible torso:

dorsal cavity

cranial cavity

vertebral canal (spinal cavity)

ventral cavity

thoracic cavity

mediastinum

pleural cavity

abdominopelvic cavity

abdominal cavity

pelvic cavity

diaphragm

smaller cavities

oral cavity

nasal cavity

orbital cavity

middle ear cavity

membranes and cavities

pleural cavity

parietal pleura

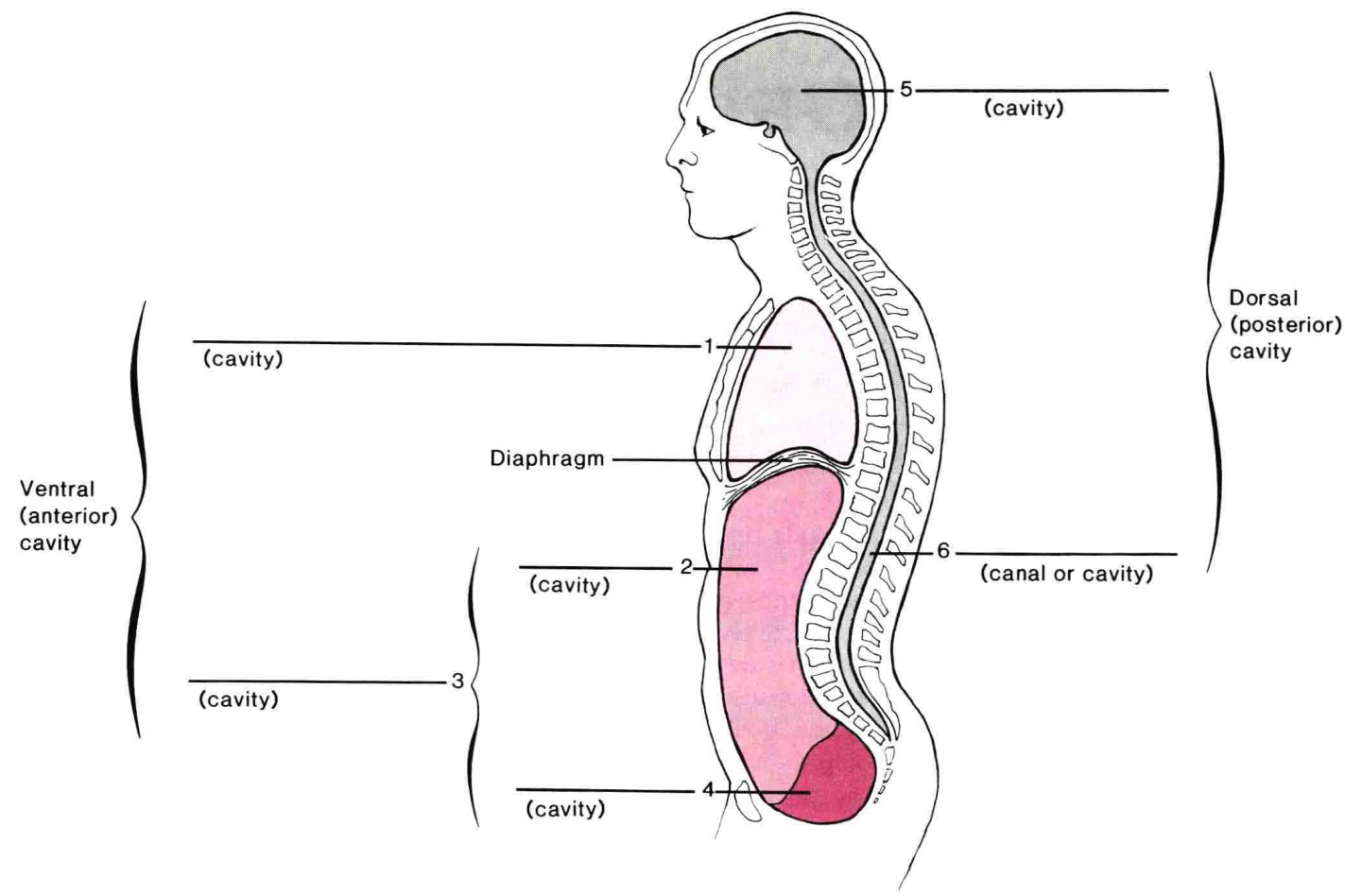
visceral pleura

pericardial cavity

parietal pericardium

visceral pericardium

Figure 1.1 Label the major body cavities.



- peritoneal cavity
- parietal peritoneum
- visceral peritoneum

4. Complete Parts A and B of Laboratory Report 1.

PROCEDURE B—ORGAN SYSTEMS

1. Review the section entitled “Organ Systems” in chapter 1 of the textbook.
2. Use the reference plates on pages 29–35 of the textbook and the dissectible torso to locate the following organs:

integumentary system

- skin (epidermis and dermis)
- accessory organs such as hair, nails, and sweat glands

skeletal system

- bones
- ligaments
- cartilages

muscular system

- skeletal muscles
- tendons

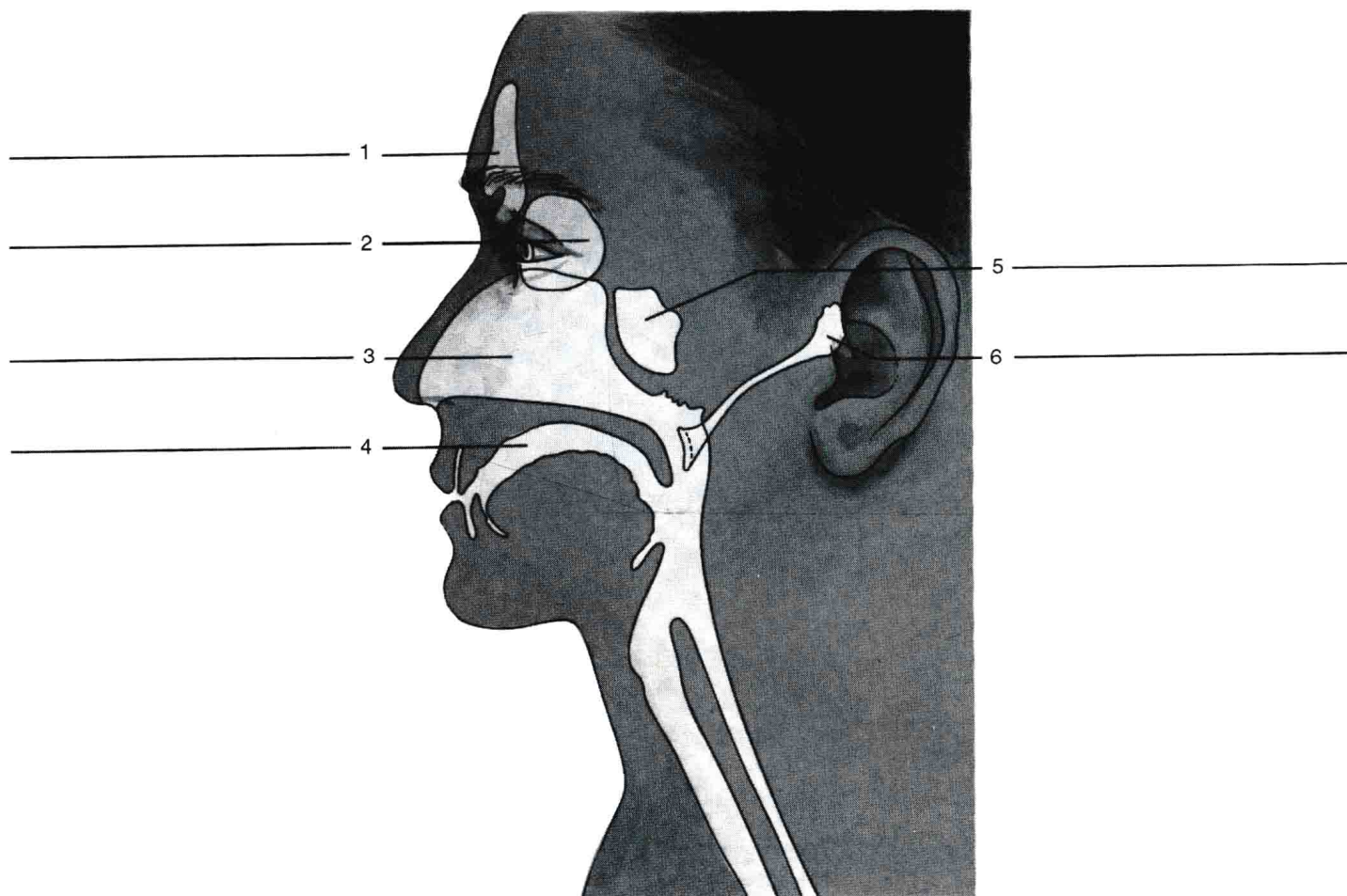
nervous system

- brain
- spinal cord
- nerves

endocrine system

- pituitary gland
- thyroid gland
- parathyroid glands
- adrenal glands
- pancreas
- ovaries
- testes
- pineal gland
- thymus gland

Figure 1.2 Label the smaller body cavities and sinuses within the head.



cardiovascular system

heart
arteries
veins

lymphatic system

lymphatic vessels
lymph nodes
thymus gland
spleen
tonsils

digestive system

mouth
tongue
teeth
salivary glands
pharynx
esophagus

stomach

liver
gallbladder
pancreas
small intestine
large intestine

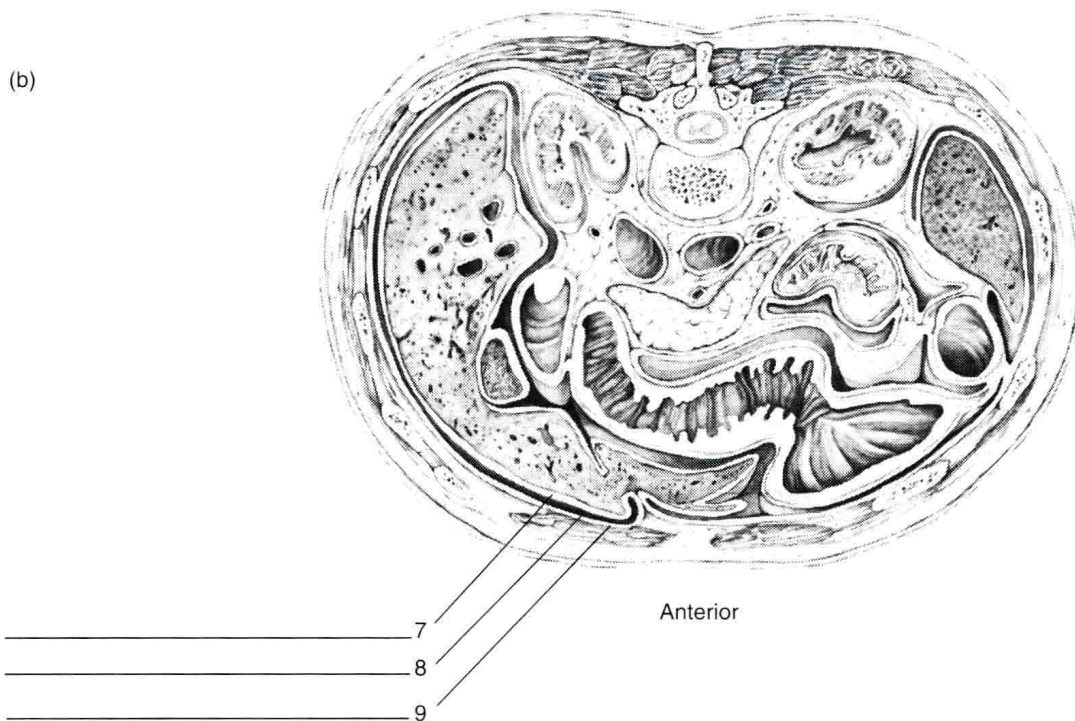
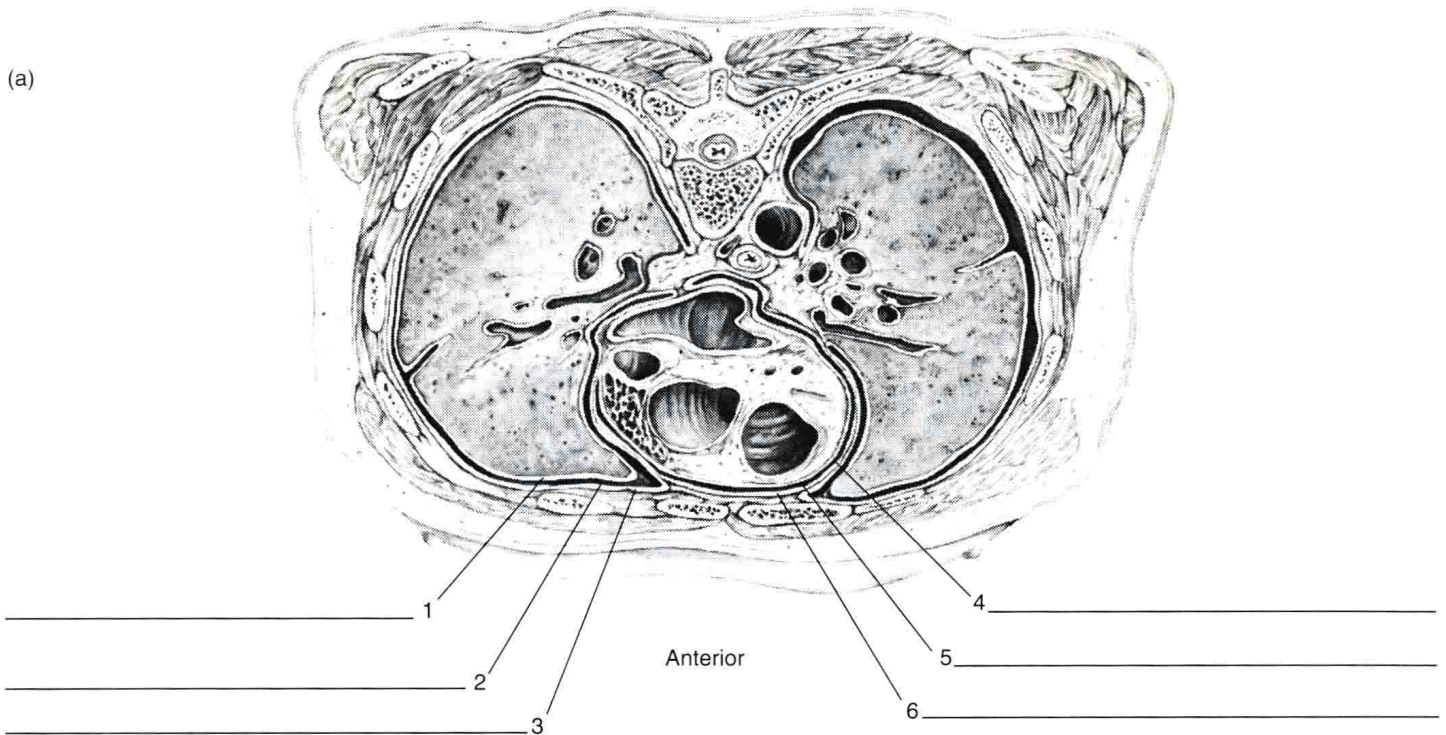
respiratory system

nasal cavity
pharynx
larynx
trachea
bronchi
lungs

urinary system

kidneys
ureters

Figure 1.3 Label the thoracic membranes and cavities in (a) and the abdominopelvic membranes and cavity in (b) as shown in these transverse sections.



urinary bladder

urethra

male reproductive system

scrotum

testes

epididymides

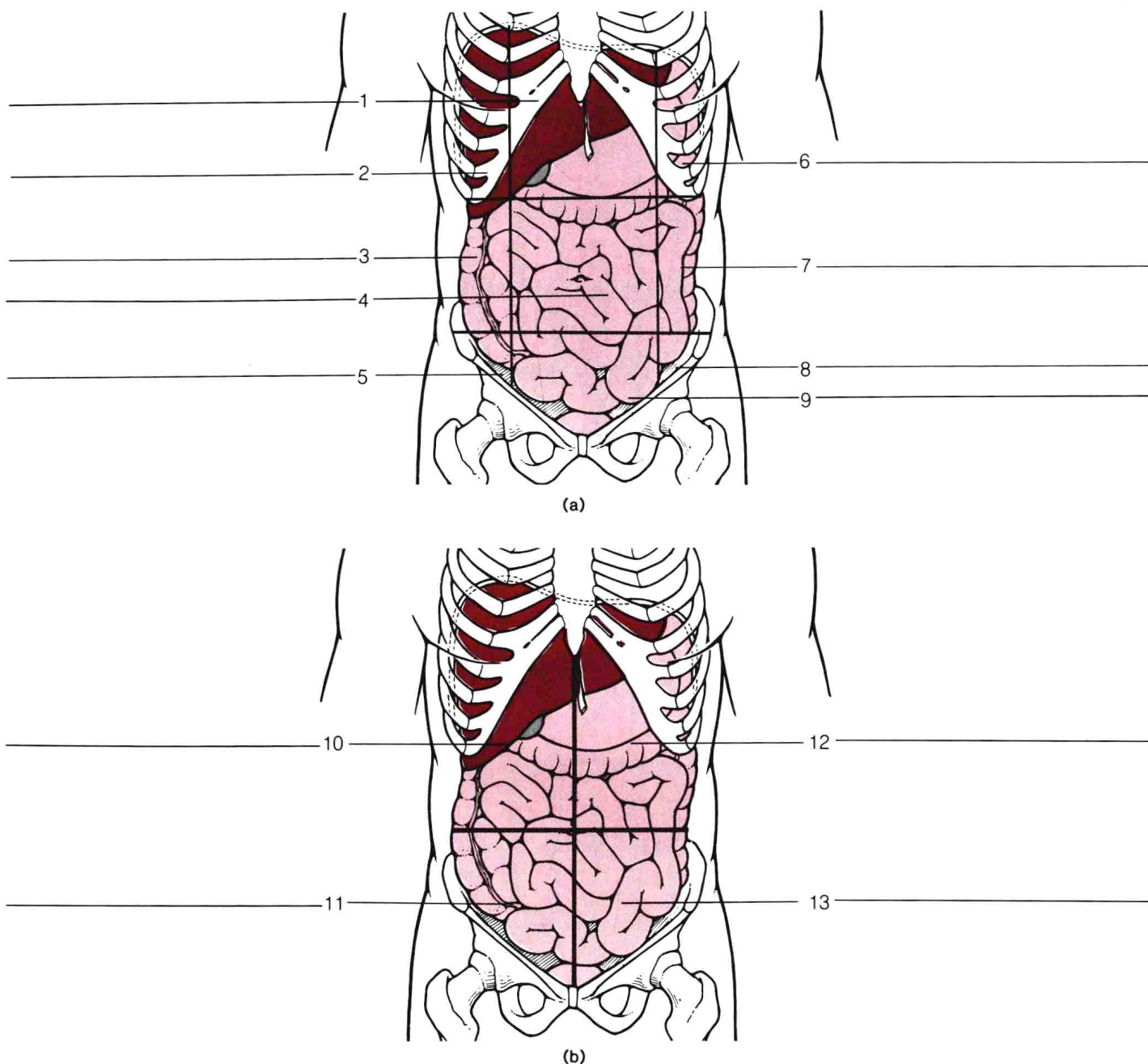
vasa deferentia

seminal vesicles

prostate gland

bulbourethral glands

Figure 1.4 Label (a) the regions and (b) the quadrants of the abdominal area.



penis
urethra

female reproductive system

ovaries
uterine tubes
uterus
vagina
clitoris
vulva

3. Complete Parts C and D of the laboratory report.

PROCEDURE C—RELATIVE POSITIONS, PLANES, SECTIONS, AND REGIONS

1. Review the section entitled “Anatomical Terminology” in chapter 1 of the textbook.
2. As a review activity, label figures 1.4, 1.5, and 1.6.
3. Examine the sectioned specimens on the demonstration table, and identify the plane along which each is cut.
4. Complete Parts E, F, G, H, and I of the laboratory report.

Figure 1.5 Label the planes represented in this illustration.

