

Chapter Two Answer Key

Answers to Lesson Exercises

p. 17 Exercise A

(smallest to largest)

1. a. atoms
- b. molecules
- c. organelles
- d. cells
- e. tissues
- f. organs
- g. organ systems
- h. organism

p. 17 Exercise B

1. The suffix -logy means study of. The suffix that means specialist in the study of is -logist.
2. A combining form is a root and its associated combining vowel. The combining vowel o makes cyt/o a combining form rather than a root.
3. The union of a male sperm and a female egg is called fertilization.
4. The suffix -elle refers to a small size.

5. A cytologist studies cells. Cyt/o is a root that means cells and –logist is a suffix that means specialist in the study of.

p. 19 Exercise A

1. electrolyte
2. metabolic
3. metabolism
4. membrane

p. 21 Exercise A

1. Mr. Josen injured his knee while playing football.
2. An arthroscopy is a visual examination of a joint.
3. The patellar tendon is anterior to the knee joint. It holds the kneecap (patella) in place.
4. The medial collateral ligament and the medial meniscus were repaired.
5. The torn anterior cruciate ligament (ACL) was removed and replaced with a graft.

p. 21 Exercise B

1. Orthopedic: adjective; The term orthopedics refers to the medical specialty that diagnoses and treats diseases and conditions of bones.
2. Collateral: adjective; The term collateral refers to one of two structures, each located on the left or right side of the body.

3. Sutured: verb; The term sutured refers to the completed action to close an incision or a laceration (cut or tear) of a body part by placing stitches to bind the wound edges together.

p. 23 Exercise A

1. Peri___/___oste___/___um
P___/___R/CF___/___S___
2. ___/___Coll/a___/___gen
P___/___R/CF___/___S___
3. syn/___ov___/___ial
P___/___R/CF___/___S___
4. ___/___Nutri___/___ent
P___/___R/CF___/___S___

p. 23 Exercise B

1. peri___/___oste___/___um
P___/___R/CF___/___S___
2. ___/___coll/a___/___gen
P___/___R/CF___/___S___
3. syn___/___ov___/___ial
P___/___R/CF___/___S___

4. cartilage
5. capsule, cartilage, matrix, tendon

p. 25 Exercise A

1. _____/___lymph___/___atic___
_____/___lymph___/___pertaining to
2. _____/___cardi/o___vascul___/___ar___
_____/___heart___blood vessel___/___pertaining to
3. _____/___skelet___/___al___
_____/___skeleton___/___pertaining to
4. _____/___integument___/___ary___
_____/___covering of the body___/___pertaining to
5. _____/___digest___/___ive___
_____/___break down food___/___pertaining to

p. 25 Exercise B

1. Cardiovascular, digestive, endocrine, integumentary, lymphatic, nervous, respiratory, skeletal, urinary --- all are body systems
2. Homeostasis means maintaining the body's internal environment and uses the root home/o. Hemostasis means to control bleeding and uses the root hem/o. The difference in these two terms is the root.
3. The main organ in the integumentary system is the skin.

4. The bony framework of the body is the called the skeleton.
5. The term lymph refers to clear fluid collected from body tissues.

p. 27 Exercise A

1. To examine Mrs. Arnold's abdomen, she should be placed in a supine position, which is lying on her back.
2. To examine Mrs. Arnold's spine, she should be placed in a prone position, which is lying on her face down.
- 3 Mrs. Arnold's spine is posterior to her abdomen.

p. 27 Exercise B

1. Anterior/posterior are opposites.
2. Ventral/anterior are synonyms.
3. Prone/supine are opposites.
4. Coronal/frontal are synonyms.
5. Cephalic/cauda are opposites.
6. Cephalic/superior are synonyms.

p. 29 Exercise A

1. none____/_diaphragmat____/ ic
P_____/____R/CF_____/__S

2. none ___/___abdomin/o___pelv_/___ic
P_____/___CF____R___/___S
3. none_____/___umbilic___/___al
P_____/___R/CF____/___S
4. none___/___crani___/___al
P_____/___R/CF___/___S
5. none___/___thorac___/___ic
P_____/___R/CF___/___S
6. none___/___cav___/___ity
P_____/___R/CF____/___S

p. 29 Exercise B

1. Abdominopelvic contains both a root and combining form. abdomin/o = CF and pelv = R
2. Diaphragmatic refers to the diaphragm, a muscle that separates the thoracic and abdominal cavities.
3. The term quadrant represents the number 4.
4. Another medical term that means spine is vertebral column.
5. A dentist may use the term cavity. A body cavity is a space. The decay of a tooth creates an erosion, which is a hole or an empty space in the surface of a tooth.

Answers to Chapter Review

p. CR2-1 Exercise A

1. ___ (blank) ___/___ster___/___oid
2. ___ (blank) ___/___organ___/___elle
3. ___ (blank) ___/___metabol___/___ic
4. ___ (blank) ___/___catabol___/___ism
5. ___ (blank) ___arthr/o___/___scopy
6. ___ (blank) ___hist/o___/___logist
7. ___peri___/___oste___/___um
8. ___ (blank) ___/___home/o___/___stasis___
9. ___ (blank) ___/___dors___/___al
10. ___ (blank) ___/___nerv___/___ous

p. CR2-1 Exercise B

Question: e

1. The question uses the word bone, and the element in one of the terms is-oste-, which means bone.
2. The incorrect choices are c and d because they are not in the skeletal system and the question is asking about the covering of bone.
3. The word bone appears in the question and its root is oste. The only choice that contains the root oste is periosteum.

4. periosteum, -oste-

p. CR2-2 Exercise C

1. electrolyte
2. cruciate
3. meniscus
4. cartilage
5. synovial
6. umbilical
7. thoracic
8. patella
9. integumentary
10. respiration

p. CR2-2 Exercise D

All of the exercises in this section will vary by student.

1. abdomin/o
2. abdomen
3. abdominopelvic
4. thorac/o
5. chest

6. thoracic
7. umbilic/o
8. navel
9. umbilical
10. cyt/o
11. cell
12. cytology
13. electr/o
14. electricity
15. electrolyte
16. hist/o
17. tissue
18. histologist
19. oste/o
20. bone
21. periosteum
22. cardi/o
23. heart
24. cardiovascular
25. home/o
26. the same

27. homeostasis
28. respir/a
29. to breathe
30. respiratory

p. CR2-3 Exercise E

1. An organ is a structure with specific functions in a body system.
2. An organelle is a part of a cell having a specific function; a small organ.
3. The difference between the two terms is the suffix –elle which means small.

p. CR2-3 Exercise F

1. The doctor has told the patient that her knee joint lacks fluid normally found within a joint (synovial fluid), and this is the cause of her severe pain.
2. The surgeon who treats diseases of bone (orthopedic surgeon) has recommended an procedure using an instrument to view a joint (arthroscopy) to repair the torn band of fibrous tissue that holds the knee joint together on the front of the body (ACL ligament) and the torn disc of cartilage in the middle of the knee joint (medial meniscus).

p. CR2-3 Exercise G

1. anatomical position
2. cephalic
3. mediastinum

p. CR2-4 Exercise H

1. pertaining to
2. abdominal
3. pertaining to
4. intracellular
5. process
6. fertilization
7. small
8. organelle
9. condition
10. mitochondria
11. pertaining to
12. thoracic
13. pertaining to
14. anterior
15. state, condition
16. cavity
17. one who studies, a specialist
18. histologist
19. study of

20. cytology
21. small
22. nucleolus
23. resembling
24. steroid
25. tissue
26. periosteum
27. These elements are all suffixes.

p. CR2-4 Exercise I

1. nucleus
2. thorax
3. mitochondria
4. homeostasis
5. integumentary
6. umbilicus
7. oocyte
8. cell
9. lymph
10. hormone

p. CR2-5 Exercise J

1. therapeut- and therap- both mean treatment.

2. -lus and -elle both mean small.
3. dors- and poster- both mean back (back part).

p. CR2-5 Exercise K

Suffix for study of is -logy

Suffix for specialist is -logist

1. pulmonology
2. pulmonologist
3. cardiology
4. cardiologist
5. neurology
6. neurologist
7. cytology
8. cytologist
9. urinary
10. urologist
11. histology
12. histologist

p. CR2-5 Exercise L

1. F

2. G
3. J
4. I
5. A
6. E
7. C
8. D
9. B
10. H

p. CR2-6 Exercise M

1. tail
2. caudal
3. pertaining to the tail
4. head
5. cephalic
6. pertaining to the head
7. glue
8. collagen
9. producing glue
10. electricity

11. electrolyte
12. soluble electricity
13. within
14. endocrine
15. to secrete within
16. change
17. metabolism
18. process of change
19. bone
20. periosteum
21. tissue surrounding bone
22. back part
23. posterior
24. pertaining to the back part
25. to examine, to view
26. arthroscopy
27. to view a joint
28. blood vessel
29. cardiovascular
30. pertaining to the heart and blood vessels

p. CR2-6 Exercise N

1. (blank) ___/___cephal___/___ic
P_____/___R/CF___/___S
2. (blank) ___/___proxim___/___al
P_____/___R/CF___/___S
3. (blank) ___/___cav___/___ity
P_____/___R/CF___/___S
4. (blank) ___/___cyt/o___/___logy
P_____/___R/CF___/___S
5. intra___/___cellul___/___ar
P_____/___R/CF___/___S
6. (blank) ___/___anabol___/___ism
P_____/___R/CF___/___S
7. (blank) ___/___arthr/o___/___scopy
P_____/___R/CF___/___S
8. (blank) ___/___hist/o___/___logist
P_____/___R/CF___/___S
9. syn___/___ov/i___/___al
P_____/___R/CF___/___S
10. (blank) ___/___home/o___/___stasis
P_____/___R/CF___/___S

p. CR2-7 Exercise O

1. Incorrect; Rewritten: Inferior pertains to being situated below something.
2. Correct statement
3. Correct statement
4. Incorrect; Rewritten: Sagittal is a vertical plane that divides the body into right and left portions.
5. Correct statement
6. Incorrect; Rewritten: Distal is opposite to proximal. Ventral is opposite to dorsal.
7. Incorrect; Rewritten: Posterior is the opposite of anterior. Caudal is the opposite of cephalic.
8. Incorrect; Rewritten: When you lie flat on your back, you are supine.
9. Incorrect; Rewritten: Ventral is the same as anterior. Dorsal is the same as posterior.
10. Correct
11. Correct

p. CR2-7 Exercise P

1. e
2. b
3. b
4. d

p. CR2-8 Exercise Q

1. a
2. c
3. b
4. c
5. e
6. b
7. a
8. d
9. e
10. b
11. c
12. c
13. d
14. b
15. d
16. b

p. CR2-10 Exercise R

1. An arthroscopy is a surgical procedure to visually examine the inside of a joint.

2. A ligament is a band of fibrous tissue connecting two structures.
3. A cruciate ligament forms the shape of a cross.
4. The patient's torn anterior cruciate ligament (ACL) was removed.
5. A graft from the patient's patellar tendon was transplanted. The graft came from the tendon that attaches the patient's patella (kneecap).
6. Medial refers to a location that is nearer to the midline of the body.
7. The patient's medial collateral ligament and the medial meniscus were repaired.
8. A meniscus is a disc of cartilage between the bones of a joint that functions as a shock absorber and provides a smooth gliding surface between the bones.
9. Rehabilitation refers to the therapeutic restoration of an ability to function at a previous level.
10. Joint mobility and stability are two qualities necessary for proper joint function. Mobility refers to the ability to move a joint properly in all directions and angles allowed by the joint. Mobility in the knee is the ability to flex and extend the lower leg properly. Stability of a joint refers to the ability to maintain the joint in the desired position. Joint stability is created because the tendons and ligaments surrounding the joint hold it in its proper place.

CHAPTER 2—The Body as a Whole

The Essentials of the Language of Anatomy

Chapter 2 Teaching Overview

Communicate to your students the importance of understanding the terminology used to describe the body as a whole. Tell them to think of this as a “road map” to the body. This chapter defines how each part of the body relates to the other parts. It also helps us describe how the smallest component is part of the whole and makes the whole system (or organism) work.

As with all lessons in this Lesson Planning Guide, you can and should modify this chapter’s lessons to best meet the needs of *your* students, *your* schedule, and *your* curricula.

Teacher to Student:

- It’s always a good idea to have a discussion with students early in the term about why they are studying medical terminology (what career programs they are in, etc.). But also have them consider the relevance this information has to their personal lives off the job. Will they ever be a patient? Take a sick child to the emergency room? Need to go to a doctor with a spouse or elderly parent? This knowledge is something they can use on and off the job every day of their lives. Knowing this seems to motivate some students more than just the career need to know medical terminology.
- Anatomical directional terms are some of the most important to know in medical terminology. Students must know which ones are horizontal and vertical, as well as how they divide the body. They also need to know if a term has a synonym (e.g., coronal and frontal).
- Students should be able to name at least one organ from each body cavity.
- The formula “A + C = M” is a great way to remember three important terms (*anabolism*, *catabolism*, and *metabolism*). Students need to understand what each process does.

Chapter 2: Learning Outcomes

Students will demonstrate the following learning outcomes upon successful completion of the lessons in this chapter:

- LO 2.1 Use roots, combining forms, suffixes, and prefixes to construct and analyze (deconstruct) medical terms related to the anatomy and physiology of the body as a whole.
- LO 2.2 Spell and pronounce correctly medical terms related to the body as a whole in order to communicate with accuracy and precision in any health care setting.
- LO 2.3 Discuss the medical terms associated with cells and tissues.
- LO 2.4 Describe the primary tissue groups and their functions.
- LO 2.5 Relate individual organs and organ systems to the organization and function of the body as a whole.
- LO 2.6 Integrate the medical terms of the different anatomic positions, planes, and directions of the body into everyday medical language.
- LO 2.7 Describe the nine regions of the abdomen.
- LO 2.8 Map the body cavities.
- LO 2.9 Apply your knowledge of the medical terms of the body as a whole to documentation, medical records, and medical reports.

- LO 2.10 Translate the medical terms of the body as a whole into everyday language in order to communicate clearly with patients and their families.

Note: These lessons are designed with ultimate flexibility in mind. When customizing the lessons for your own class, always choose activities that are most relevant to *your* curriculum, *your* students, and *your* teaching goals—especially if you do not have time to implement all of the provided activities in your class period.

Instructor Lesson Plan: Chapter 2, Lesson 2.1

Lesson 2.1: Composition of Body and Cells

Lesson 2.1 Learning Objectives

Total Time: 50 Minutes

Your teaching goal for this lesson is to help your students accomplish these learning objectives:

- 2.1.1 Name the medical terms associated with cells, tissues, and organs.
- 2.1.2 Discuss the medical terminology for the major structures and functions of a cell.

Prepare Your Materials:

- **Pictures of different types of cells** (or, even better, if you have access to real animal cells on slides and microscopes, students can look at these instead)
- **Lesson 2.1 PowerPoint® presentation**—Found on **Connect®** in the Library under Instructor Resources (<http://connect.mheducation.com>)
- **Lesson 2.1 student note-taking handout**—Create by selecting the “Handouts” option when printing the PowerPoint® presentation; select “3 slides per page” to print slides with blank lines to the right where students can take notes
- Pronunciations of medical terms are found in the audio glossary in **Connect®** (<http://connect.mheducation.com>)
- **Drawing paper and markers or crayons**

Lesson 2.1 Activities & Instructions

Introduction—10 Minutes

Learning Outcomes—LO 2.1, 2.2, 2.3

Materials—Pictures of different types of animal cells (or slides and microscopes, if available)

Activity Description—Introduction to cells and their structure and function

- Step 1:** Spend a minute or two asking students to share what they know about cells to give you an idea of what they know and what they don't.
- Step 2:** Ask students to examine pictures of several different types of cells. Ask them to make a list of similarities and differences they notice in the cells. This can be done in small groups; have each

group exchange pictures with another group until every group has looked at all of the different pictures of animal cells.

Step 3: Share the similarities and differences that students identified with the whole class. Point out several of the parts of a cell that students will learn about later in this lesson.

Step 4: Tell students that cells are the building blocks of the body. Explain that groups of cells form tissues, groups of tissues form organs, groups of organs form organ systems, and groups of organ systems form organisms.

Lecture/Discussion—20 Minutes

Learning Outcomes—LO 2.1, 2.2, 2.3

Materials—Lesson 2.1 PowerPoint® presentation, Lesson 2.1 student note-taking handouts

Activity Description—Lecture/Discussion

Reference the Speaker Notes for each slide to assist you in discussing the talking points. You can view or print “Notes Pages” to use during the lecture for easy reference (in PowerPoint®, select “View” and then “Notes Page”).

Active Learning & Practice—10 Minutes

Learning Outcomes—LO 2.1, 2.2, 2.3

Materials—Drawing paper and markers or crayons

Activity Description—Drawing cells and their components

Step 1: In pairs, small groups, or as individuals, ask students to take a sheet of drawing paper and some markers or crayons.

Step 2: Each student or group should draw a cross section of an animal cell. Students can use the textbook or other models for help. (An alternative to this activity that will take some extra time is to have students create 3-D models of cells from various objects such as clay, Play-Doh, or even more creative materials such as cake, Styrofoam, Legos, candy, etc.)

Step 3: Have students evaluate each other’s cells to make sure everything is correct and depicted accurately. You may consider posting their drawings in the room as a visual reminder of the parts of cells.

Review—5 Minutes

Learning Outcomes—LO 2.1, 2.2, 2.3

Materials—Lesson 2.2 exercises (in textbook)

Activity Description—Review

Step 1: As a whole class, go through the Lesson 2.1 exercises aloud.

Step 2: As students are reading the answers aloud, pay attention to their pronunciation and reinforce correct pronunciation. Once again, encourage students to discuss the strategies they used to deconstruct the terms and construct meaning from their parts.

Homework Assignment

Ask students to do the following:

- Read Lesson 2.2 in the textbook.

Instructor Lesson Plan: Chapter 2, Lesson 2.2

Lesson 2.2: Tissues, Organs, and Organ Systems

Lesson 2.2 Learning Objectives

Total Time: 50 Minutes

Your teaching goal for this lesson is to help your students accomplish these learning objectives:

- 2.2.1 Define the four primary tissue groups.
- 2.2.2 Discuss the medical terminology for the structure and functions of each tissue group.
- 2.2.3 Name the organ systems.
- 2.2.4 Describe the medical terminology for the structure and functions of each organ system.

Prepare Your Materials:

- **Ball** (e.g., beach ball, stress [“squeezy”] ball, or other soft ball that can be thrown safely in class)
- **10 to 15 questions from Lesson 2.1**—Use the McGraw-Hill EZ-Test, found on **Connect®** in the Library under Instructor Resources (<http://connect.mheducation.com>)
- **Lesson 2.2 PowerPoint® presentation**—Found on **Connect®** in the Library under Instructor Resources (<http://connect.mheducation.com>)
- **Lesson 2.2 student note-taking handout**—Create by selecting the “Handouts” option when printing the PowerPoint® presentation; select “3 slides per page” to print slides with blank lines to the right where students can take notes
- Pronunciations of medical terms are found in the audio glossary in **Connect®** (<http://connect.mheducation.com>)
- **Large sheets of paper**—Use one sheet per group; sheets should be at least 6 feet long and 2–3 feet wide
- **Markers or crayons**

Lesson 2.2 Activities & Instructions

Warm-up & Review—10 Minutes

Learning Objective—Review of Lesson 2.1

Materials—Ball, questions from Lesson 2.1

Activity Description—Review of terms from Lesson 2.1

Step 1: Toss the ball to any student; then read one of the questions aloud.

Step 2: If the student caught the ball, then he or she can either answer the question or pass the ball to another student. If the student dropped the ball when you threw it, the student must attempt to answer the question.

Step 3: If the student answers the question correctly, then he or she gets to toss the ball to a new student to answer a new question. If the student does not answer correctly, he or she must walk the ball back up to the instructor.

Step 4: The game continues in the same way until all of the questions are answered or all students have had a turn. (Repeating questions can be a great way to reinforce learning; it's okay if the same question is asked several times to different students.)

Introduction—5 Minutes

Learning Outcomes—LO 2.2, 2.3, 2.4, 2.5, 2.9

Materials—None

Activity Description—Introduction to cells' relation to tissues, organs, and systems

Step 1: Find out what students already know about tissues and organs by asking students how cells relate to tissues. Then ask how tissues relate to organs. Clarify students' understanding.

Step 2: Ask students to give examples of tissues that are made up of specific types of cells (examples may include muscle tissue, brain tissue, etc.).

Step 3: Now ask students to give examples of organs within the body. See if they know what organ systems these organs belong to.

Step 4: Remind students that cells are the building blocks of the body. Explain that groups of cells form tissues, groups of tissues form organs, groups of organs form organ systems, and groups of organ systems form organisms.

Lecture/Discussion—20 Minutes

Learning Outcomes— LO 2.2, 2.3, 2.4, 2.5, 2.9

Materials—Lesson 2.2 PowerPoint® presentation, Lesson 2.2 student note-taking handouts

Activity Description—Lecture/Discussion

Reference the Speaker Notes for each slide to assist you in discussing the talking points. You can view or print “Notes Pages” to use during the lecture for easy reference (in PowerPoint®, select “View” and then “Notes Page”).

Active Learning & Practice—15 Minutes

Learning Outcomes—LO 2.2, 2.3, 2.4, 2.5, 2.9

Materials—Large sheets of paper and markers or crayons

Activity Description—Introduction to the various organ systems and their components

Step 1: Put students into small groups (or pairs), and give each group a large sheet of paper.

Step 2: Assign a different organ system to each group.

Step 3: In each group, one group member will lie down on the paper and another group member will trace that student's outline onto the paper.

Step 4: Once the student's outline has been traced on the paper, the group will proceed to make a life-size diagram depicting the location of the major organs in the group's assigned organ system.

Step 5: Each group should use the textbook or other resources to identify the function of their organ system within the body.

Step 6: When finished, each group will present their organ system diagram to the class and share what they have learned.

Review—10 Minutes

Learning Outcomes— LO 2.2, 2.3, 2.4, 2.5, 2.9

Materials—Lesson 2.2 exercises (in textbook)

Activity Description—Review

Step 1: As a whole class, go through the Lesson 2.2 exercises aloud. Explain or clarify anything that is difficult for students. Be aware of students' pronunciation of the terms, and help if they struggle. Remaining exercises may be assigned as homework.

Homework Assignment

Ask students to do the following:

- Read Lesson 2.2.

Instructor Lesson Plan: Chapter 2, Lesson 2.3

Lesson 2.3: Anatomical Positions, Planes, and Directions

Lesson 2.3 Learning Objectives

Total Time: 50 Minutes

Your teaching goal for this lesson is to help your students accomplish these learning objectives:

- 2.3.1 Define the fundamental anatomical position on which all descriptions of anatomical locations are based.
- 2.3.2 Describe the medical terminology of the different anatomical planes and directions.
- 2.3.3 Relate these terms to physical sites on the body.
- 2.3.4 Locate the body cavities.
- 2.3.5 Identify the medical terminology of the four abdominal quadrants and nine main regions.

Prepare Your Materials:

- **4 × 6 index cards with medical terms from Lesson 2.3 written on them** (e.g., names of directional terms, planes, etc.)—One term should be on each card; this activity can also be done with sticky notes or self-stick/peel-off shipping labels instead of index cards (Note: you can also have students prepare the cards the day before as a homework assignment or at the beginning of class for review)
- **Tape**
- **Large doll or stuffed animal** (a classroom skeleton may also be used if available)
- **Small prizes** for winning game, if desired
- **Lesson 2.3 PowerPoint® presentation**—Found on **Connect®** in the Library under Instructor Resources (<http://connect.mheducation.com>)
- **Lesson 2.3 student note-taking handout**—Create by selecting the “Handouts” option when printing the PowerPoint® presentation; select “3 slides per page” to print slides with blank lines to the right where students can take notes
- Pronunciations of medical terms are found in the audio glossary in **Connect®** (<http://connect.mheducation.com>)

Lesson 2.3 Activities & Instructions

Warm-up & Introduction—10 Minutes

Learning Outcomes—LO 2.1, 2.6, 2.7, 2.8

Materials—Large doll or stuffed animal

Activity Description—Introduction to the concept of using terms to describe anatomical positions, planes, and directions

Step 1: Sit (or stand) the doll upright in a location where the entire class can see it.

Step 2: Ask students to point to the top of the doll’s body. (Note where students point; some may point at the head, while others may point at the chest.)

Step 3: Next, lay the doll on its back so that it is parallel to the floor or the surface on which it rests and is facing the ceiling of the room. Ask students once again to point to the “top” of the doll’s body. It is likely students will now point to the doll’s abdomen, or the uppermost part of the doll.

Step 4: Ask students why they pointed to a different part of the doll when you asked them the same question (“point to the ‘top’ of the doll’s body”).

- Step 5:** Next, lay the doll on its stomach so that it is parallel to the floor or the surface on which it rests and is facing the floor or surface. Ask students once again to point to the “top” of the doll’s body.
- Step 6:** By this time, students should be realizing that unless we have more specific terminology than “top” and “bottom,” etc., it would be very difficult for health care professionals to talk about the human body in a clear, understandable way.
- Step 7:** Tell students that in this lesson, they will learn some directional words that can be used to describe locations on the body precisely. Preview anatomical position, directional terms, and anatomical planes using the doll briefly before beginning the lecture/discussion. Tell students that it is important to study these terms as pairs (same as) or opposites (superior/inferior).

Lecture/Discussion—20 Minutes

Learning Outcomes— LO 2.1, 2.6, 2.7, 2.8

Materials—Lesson 2.3 PowerPoint® presentation, Lesson 2.3 student note-taking handouts

Activity Description—Lecture/Discussion

Reference the Speaker Notes for each slide to assist you in discussing the talking points. You can view or print “Notes Pages” to use during the lecture for easy reference (in PowerPoint®, select “View” and then “Notes Page”).

Active Learning & Practice—15 Minutes

Learning Outcomes— LO 2.1, 2.6, 2.7, 2.8

Materials—Large doll or stuffed animal

Activity Description—Practice using directional terms

Step 1: Break the class into two “teams.”

Step 2: Ask a student in one of the two teams to stand up and hold the doll or stuffed animal.

Step 3: Give the student a position, direction, plane, cavity, or abdominal region or quadrant to identify on the doll.

Step 4: If the student correctly identifies what you have asked for, a point is earned and he or she can pass the doll to another student on his or her team to try to earn the team another point. If the student is incorrect, no point is earned, he or she must give the doll back to the instructor, and the second team has a chance to answer the question and earn a point.

Step 5: Play continues until time is up or until all students have had a chance to identify something. Prizes may be given to the team with the most points at the end of the game, if desired.

Practice—10 Minutes

Learning Objective—Review of Lesson 2.3

Learning Outcomes— LO 2.1, 2.6, 2.7, 2.8

Materials—4 × 6 index cards with terms from Lesson 2.3 written on them

Activity Description—Game to review directional terms

Step 1: Have all students stand in a single line with their backs turned to you.

Step 2: Attach one 4 × 6 card, with the name of a term from Lesson 2.3 on it, to each student’s back using tape (or just stick it on if using sticky notes or shipping labels). Explain to students that each of them has a medical term from Lesson 2.3 on his or her back and each need to ask questions of other students to determine what that term is.

Step 3: To play the game, each student should approach another and show the term on his or her back.

Step 4: Once the other person has read the term, the student will ask the person a “yes/no” type of question (i.e., a question to which the answer is either yes or no and requires no further explanation) to help determine what the term on his or her back is.

- Fair-question example: “Am I a quadrant in the abdominal cavity?”
- Unfair-question example: “Am I associated with body directions or with body cavities?”

Step 5: Tell students they can only ask one question at a time; once someone answers the question, the student must ask the next question to a different student.

Step 6: Once students have correctly guessed the term on their backs, they should move the term from their backs to their fronts so that other students know they have guessed it. Students who have guessed their terms should still answer questions for others who have not yet correctly identified their terms.

Review—10 Minutes

Learning Outcomes— LO 2.1, 2.6, 2.7, 2.8

Materials—Lesson 2.3 exercises

Activity Description—Review

Step 1: Go through the Lesson 2.3 exercises from the textbook aloud as a group; explain or clarify anything that is difficult for students.

Step 2: Reinforce correct pronunciation of each term as students read the exercises aloud. If necessary, use the audio glossary in **Connect®** (<http://connect.mheducation.com>).

Homework Assignment

Ask students to do the following:

- Complete the Chapter 2 review exercises as assigned in Connect.