

# TEACHER GUIDE

Includes  
Student Worksheets

- 🕒 Weekly Lesson Schedule
- 📄 Worksheets
- 📝 Quizzes & Tests
- 🔑 Answer Keys

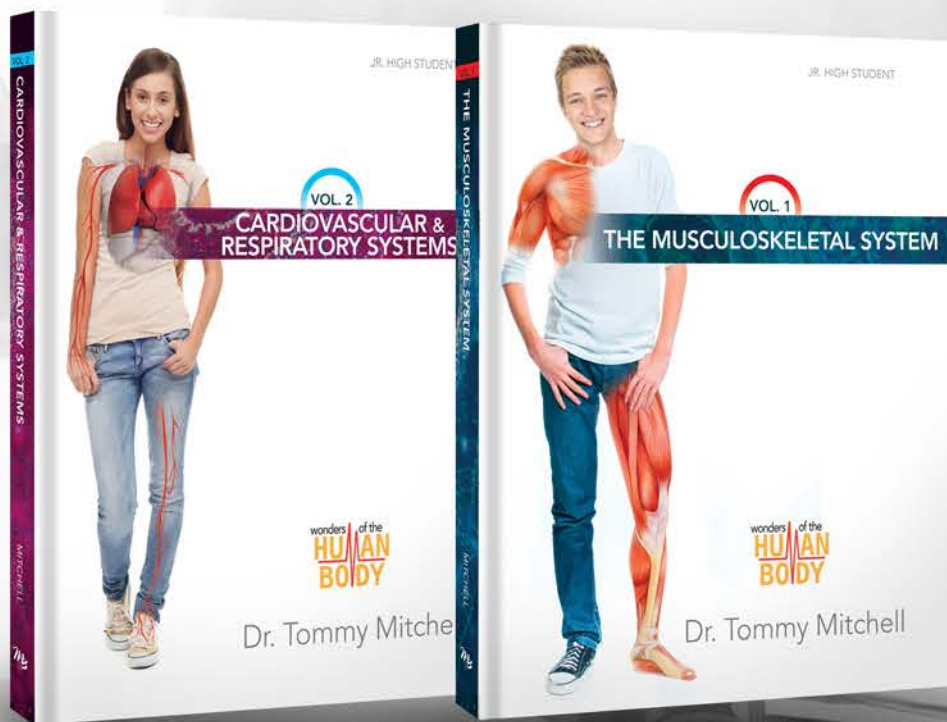
7th–8th

Science

1 Credit

## INTRODUCTION TO ANATOMY & PHYSIOLOGY

The Musculoskeletal, Cardiovascular,  
& Respiratory Systems







wonders of the  
**HUMAN**  
**BODY**

# TEACHER GUIDE

7th–8th Grade

Includes Student  
Worksheets

Science

-  Weekly Lesson Schedule
-  Worksheets
-  Quizzes & Tests
-  Answer Keys

## Introduction to Anatomy & Physiology



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Dr. Tommy Mitchell has been a speaker and writer for Answers in Genesis since 2005. He has a degree in cell biology, as well as a medical degree. Once an evolutionist, now a creationist, he feels extremely passionate about sharing the vital creation/gospel message with the world, especially with influential teens.

## Using This Teacher Guide

**Features:** The suggested weekly schedule enclosed has easy-to-manage lessons that guide the reading, worksheets, and all assessments. The pages of this guide are perforated and three-hole punched so materials are easy to tear out, hand out, grade, and store. Teachers are encouraged to adjust the schedule and materials needed in order to best work within their unique educational program.

**Lesson Scheduling:** Students are instructed to read the pages in their book and then complete the corresponding section provided by the teacher. Assessments that may include worksheets, activities, quizzes, and tests are given at regular intervals with space to record each grade. Space is provided on the weekly schedule for assignment dates, and flexibility in scheduling is encouraged. Teachers may adapt the scheduled days per each unique student situation. As the student completes each assignment, this can be marked with an “X” in the box.



**Approximately 30 to 45 minutes per lesson, five days a week**



**Includes answer keys for worksheets, quizzes, and tests.**



**Worksheets for each section**



**Quizzes and tests are included to help reinforce learning and provide assessment opportunities.**



**Designed for grades 7 to 8 in a one-year course to earn science credit**

**Course Objectives:** Students completing this course will

- ✓ Learn the incredible design of the human heart and how it is really two pumps in one
- ✓ Identify how blood moves through an incredible network of arteries and veins
- ✓ Investigate what “blood pressure” is and the marvelous systems that help regulate it
- ✓ Explore how the respiratory system allows us to get the “bad air out “ and the “good air in”
- ✓ Review the ins and outs of the bones in your skeleton and how they function
- ✓ Discover detail as to how your marvelous muscles move you.

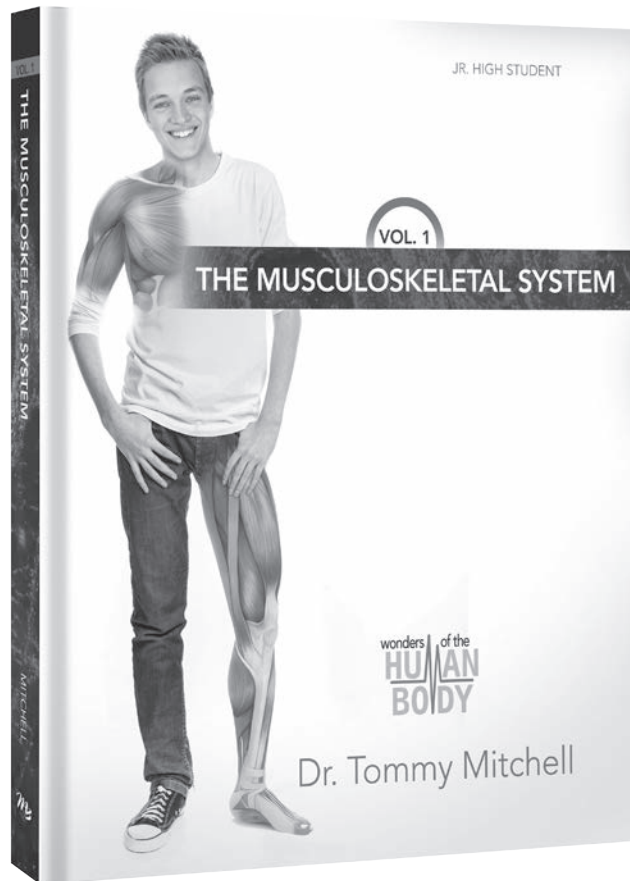
## First Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
First Semester-First Quarter — <i>The Musculoskeletal System</i>					
Week 1	Day 1	Read Foundations • Pages 4–5 • <i>The Musculoskeletal System</i> (MS) Read Introduction with focus on course objectives • Pages 4–5 • Teacher Guide (TG)			
	Day 2	Read Introduction • Pages 6–9 • (MS)			
	Day 3	Read Pages 10–12 • (MS)			
	Day 4	Worksheet 1 • Pages 17–18 • (TG)			
	Day 5	Worksheet 1 • Pages 17–18 • (TG)			
Week 2	Day 6	Read Pages 13–14 • (MS)			
	Day 7	Read Pages 15–16 (to Ribosomes) • (MS)			
	Day 8	Worksheet 2 • Pages 19–20 • (TG)			
	Day 9	Worksheet 2 • Pages 19–20 • (TG)			
	Day 10	Read pages 16 (from Ribosomes)–19 (to Nucleus) • (MS)			
Week 3	Day 11	Read pages 19 (from Nucleus)–22 • (MS)			
	Day 12	Worksheet 3 • Pages 21–22 • (TG)			
	Day 13	Worksheet 3 • Pages 21–22 • (TG)			
	Day 14	Read Pages 23–27 (to Moving On) • (MS)			
	Day 15	Read Pages 27 (from Moving On)–28 • (MS)			
Week 4	Day 16	Read Pages 29–top paragraph of 30 • (MS)			
	Day 17	Read Pages 30 (second paragraph on)–31 • (MS)			
	Day 18	Read pages 32–33 • (MS)			
	Day 19	Worksheet 4 • Pages 23–24 • (TG)			
	Day 20	Worksheet 4 • Pages 23–24 • (TG)			
Week 5	Day 21	Worksheet 4 • Pages 23–24 • (TG)			
	Day 22	Read Pages 34–36 (to But They Are) • (MS)			
	Day 23	Read Pages 36 (from But They Are)–37 • (MS)			
	Day 24	Read Pages 38–39 • (MS)			
	Day 25	Worksheet 5 • Pages 25–26 • (TG)			
Week 6	Day 26	Worksheet 5 • Pages 25–26 • (TG)			
	Day 27	Study Day			
	Day 28	Quiz Section One • Pages 97–98 • (TG)			
	Day 29	Read Pages 40–42 • (MS)			
	Day 30	Read Page 43 • (MS)			
Week 7	Day 31	Worksheet 6 • Pages 27–28 • (TG)			
	Day 32	Worksheet 6 • Pages 27–28 • (TG)			
	Day 33	Read Pages 44–45 • (MS)			
	Day 34	Read Pages 46–47 (to Bone Cells) • (MS)			
	Day 35	Worksheet 7 • Pages 29–30 • (TG)			



Date	Day	Assignment	Due Date	✓	Grade
Week 8	Day 36	Worksheet 7 • Pages 29–30 • (TG)			
	Day 37	Read Pages 47 (from Bone Cells)–49 (to Mature Bone) • (MS)			
	Day 38	Read 49 (from Mature Bone)–51 • (MS)			
	Day 39	Worksheet 8 • Pages 31–32 • (TG)			
	Day 40	Worksheet 8 • Pages 31–32 • (TG)			
Week 9	Day 41	Read Pages 52–53 (to Bone and the Body) • (MS)			
	Day 42	Read Pages 53 (from Bone and the Body)–55 • (MS)			
	Day 43	Worksheet 9 • Page 33 • (TG)			
	Day 44	Worksheet 9 • Page 33 • (TG)			
	Day 45	Read Pages 56–57 • (MS)			
First Semester-Second Quarter — <i>The Musculoskeletal System</i>					
Week 1	Day 46	Read Pages 58–59 • (MS)			
	Day 47	Worksheet 10 • Pages 35–36 • (TG)			
	Day 48	Worksheet 10 • Pages 35–36 • (TG)			
	Day 49	Read Pages 60–61 • (MS)			
	Day 50	Read Pages 62–63 • (MS)			
Week 2	Day 51	Worksheet 11 • Pages 37–38 • (TG)			
	Day 52	Worksheet 11 • Pages 37–38 • (TG)			
	Day 53	Read Pages 64–65 • (MS)			
	Day 54	Read Pages 66–68 • (MS)			
	Day 55	Worksheet 12 • Pages 39–40 • (TG)			
Week 3	Day 56	Worksheet 12 • Pages 39–40 • (TG)			
	Day 57	Read Pages 69–70 • (MS)			
	Day 58	Read Pages 71–72 • (MS)			
	Day 59	Worksheet 13 • Pages 41–42 • (TG)			
	Day 60	Worksheet 13 • Pages 41–42 • (TG)			
Week 4	Day 61	Read Pages 73–74 (to The Leg) • (MS)			
	Day 62	Read Pages 74 (from The Leg)–75 • (MS)			
	Day 63	Read Pages 76–77 • (MS)			
	Day 64	Worksheet 14 • Pages 43–44 • (TG)			
	Day 65	Worksheet 14 • Pages 43–44 • (TG)			
Week 5	Day 66	Study Day			
	Day 67	Quiz Section Two • Pages 99–100 • (TG)			
	Day 68	Read Pages 78–80 • (MS)			
	Day 69	Read Pages 81–82 • (MS)			
	Day 70	Worksheet 15 • Page 45 • (TG)			
Week 6	Day 71	Worksheet 15 • Page 45 • (TG)			
	Day 72	Read Pages 83–85 (to Stimulated to Move) • (MS)			
	Day 73	Read Pages 85 (from Stimulated to Move)–86 • (MS)			
	Day 74	Worksheet 16 • Pages 47–48 • (TG)			
	Day 75	Worksheet 16 • Pages 47–48 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 7	Day 76	Read Pages 87–88 • (MS)			
	Day 77	Read Pages 89–91 • (MS)			
	Day 78	Worksheet 17 • Page 49 • (TG)			
	Day 79	Worksheet 17 • Page 49 • (TG)			
	Day 80	Read Pages 92–93 • (MS)			
Week 8	Day 81	Read Pages 94–96 • (MS)			
	Day 82	Worksheet 18 • Pages 51–52 • (TG)			
	Day 83	Worksheet 18 • Pages 51–52 • (TG)			
	Day 84	Read Pages 97–99 (to The Head and Face) • (MS)			
	Day 85	Read Pages 99 (from The Head and Face)–101 • (MS)			
Week 9	Day 86	Worksheet 19 • Pages 53–54 • (TG)			
	Day 87	Study Day			
	Day 88	Quiz Section Three • Pages 101–102 • (TG)			
	Day 89	Study Day			
	Day 90	Semester Test • Pages 107–108 • (TG)			
		Mid-Term Grade			



**Musculoskeletal System Worksheets**  
**for Use with**  
***The Musculoskeletal System***





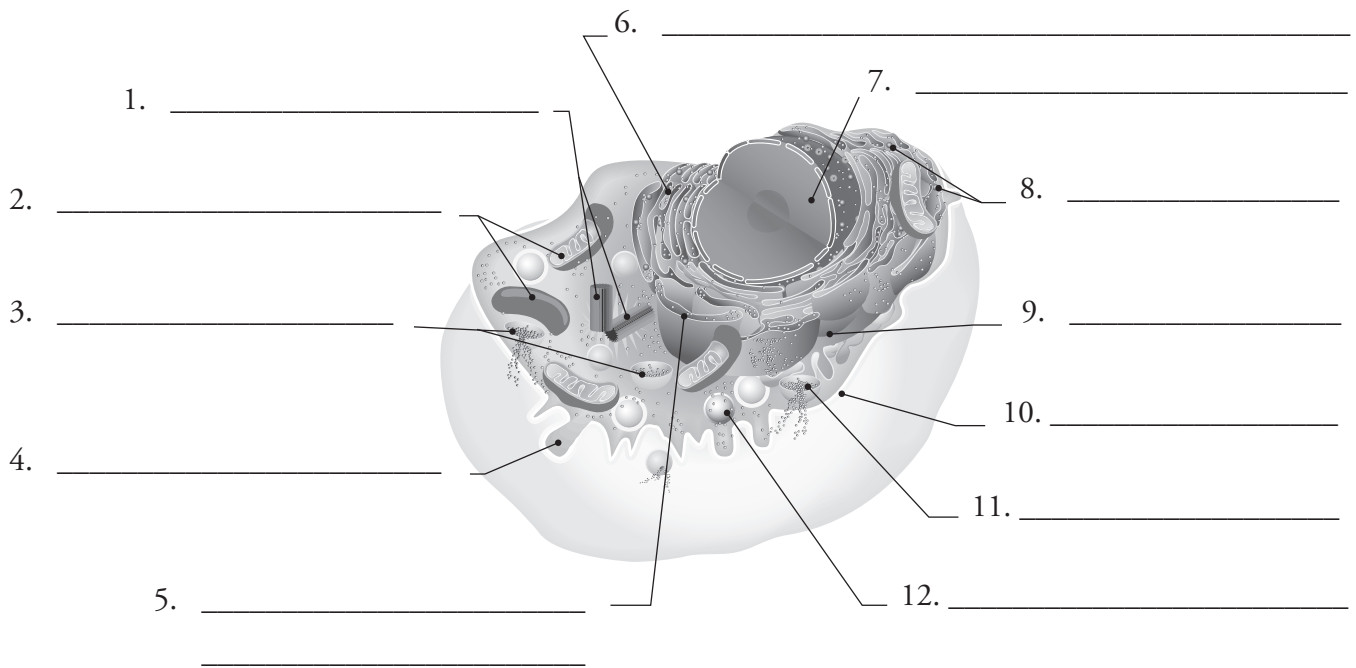
**Words to Know: Define the Following:**

1. Cells: \_\_\_\_\_
2. Anatomy: \_\_\_\_\_
3. Physiology: \_\_\_\_\_
4. Organs: \_\_\_\_\_
5. Digestive system: \_\_\_\_\_
6. Nucleus: \_\_\_\_\_
7. Cell membrane: \_\_\_\_\_
8. Cytoplasm: \_\_\_\_\_
9. Erythrocytes: \_\_\_\_\_
10. Nucleus: \_\_\_\_\_

**Fill in the Blank**

1. The bones in the skeleton cannot remain strong without \_\_\_\_\_, which is manufactured by the skin.
2. There are over \_\_\_\_\_ different kinds of cells in the human body.
3. Psalm \_\_\_\_\_, says, “I will praise You, for I am fearfully and wonderfully made; marvelous are Your works.”
4. Just as words are built of letters and books are built from words, so your body is built of organs and tissues, and all the organs and tissues are made of \_\_\_\_\_.
5. The study of microscopic anatomy is called \_\_\_\_\_.
6. Physiology of the circulatory system focuses on how the \_\_\_\_\_ works.
7. Cells are small but not \_\_\_\_\_.
8. Groups of cells form tissues, which can be thought of as one of four basic tissue types — epithelial, connective, muscle, and \_\_\_\_\_.
9. The cell is the smallest “\_\_\_\_\_ unit” of the body.
10. Most cells have three basic parts — a nucleus, a cell membrane, and \_\_\_\_\_.

## Complete the Chart — Human Cell Structure



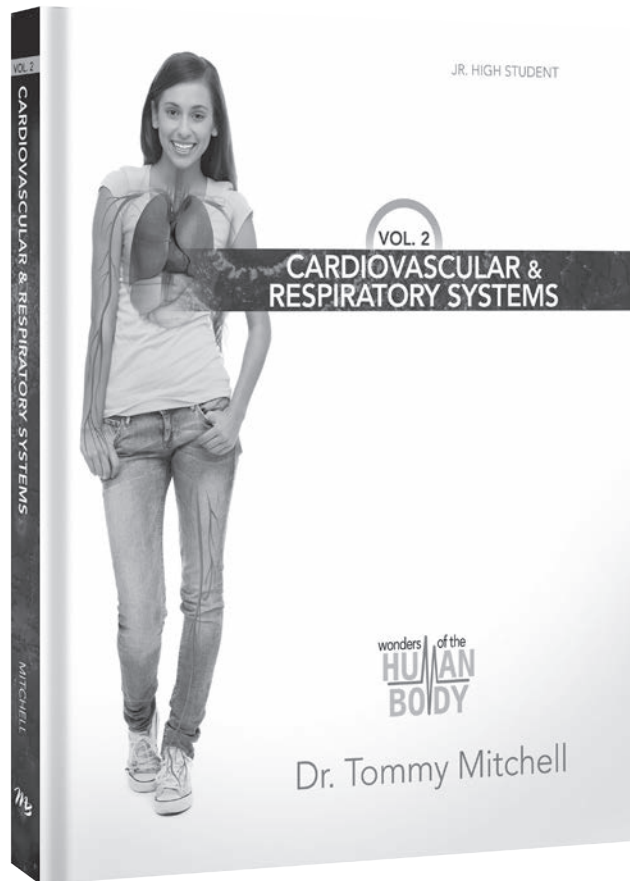


**Words to Know: Define the Following:**

1. The plasma membrane: \_\_\_\_\_
2. Intracellular fluid: \_\_\_\_\_
3. Extracellular fluid: \_\_\_\_\_
4. Water soluble: \_\_\_\_\_
5. Lipid: \_\_\_\_\_
6. Hydrophilic: \_\_\_\_\_
7. Hydrophobic: \_\_\_\_\_
8. Exocytosis: \_\_\_\_\_
9. Cytosol: \_\_\_\_\_
10. Lysosomes: \_\_\_\_\_

**Fill in the Blank**

1. The plasma \_\_\_\_\_ is far more than just a container, for it helps separate the two major fluid compartments of the body, the intracellular fluid and the extracellular fluid.
2. The plasma membrane is actually made up of two layers of molecules called \_\_\_\_\_.
3. The plasma membrane is composed of two layers of phospholipids, creatively called a phospholipid \_\_\_\_\_, which means “two layers of phospholipids.”
4. The cytosol plus the organelles make up the \_\_\_\_\_.
5. \_\_\_\_\_ acids are the building blocks of proteins.
6. The \_\_\_\_\_ reticulum is a network of tubes and membranes that is connected to the nuclear membrane.
7. The \_\_\_\_\_ apparatus is a collection of small flattened sacs that stack on one another.
8. \_\_\_\_\_ break down worn-out organelles, bacteria, and toxic substances.
9. Lysosomes also aid the cell by breaking down substances the cell needs for \_\_\_\_\_.
10. By breaking down organelles that are worn out or no longer needed, the lysosomes \_\_\_\_\_ valuable materials.



**Cardiovascular & Respiratory Systems Worksheets**  
**for Use with**  
***The Cardiovascular & Respiratory Systems***



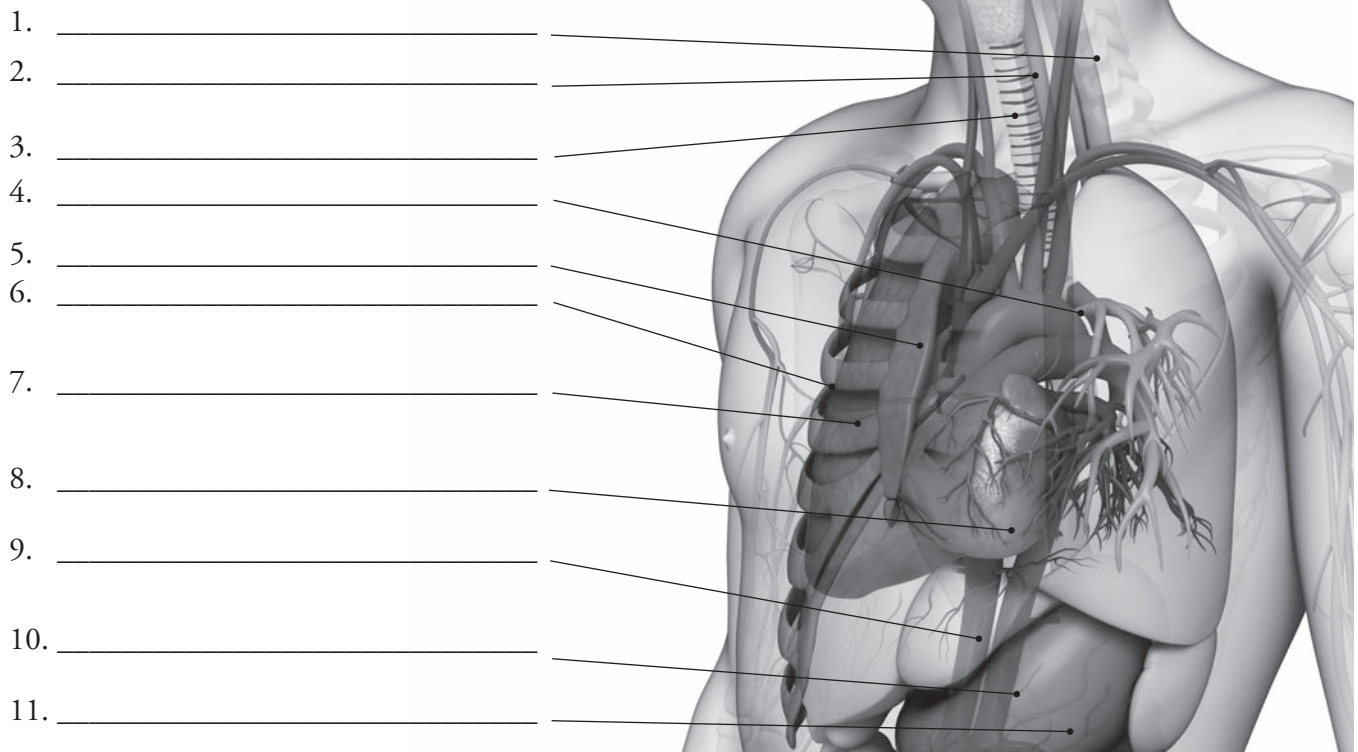
**Words to Know: Define the Following:**

1. Cardiovascular system: \_\_\_\_\_
2. Respiratory system: \_\_\_\_\_
3. Physiology: \_\_\_\_\_
4. Skeletal muscles: \_\_\_\_\_
5. Mitochondria: \_\_\_\_\_
6. Esophagus: \_\_\_\_\_
7. Trachea: \_\_\_\_\_
8. Diaphragm: \_\_\_\_\_
9. Pericardium: \_\_\_\_\_
10. Epicardium: \_\_\_\_\_

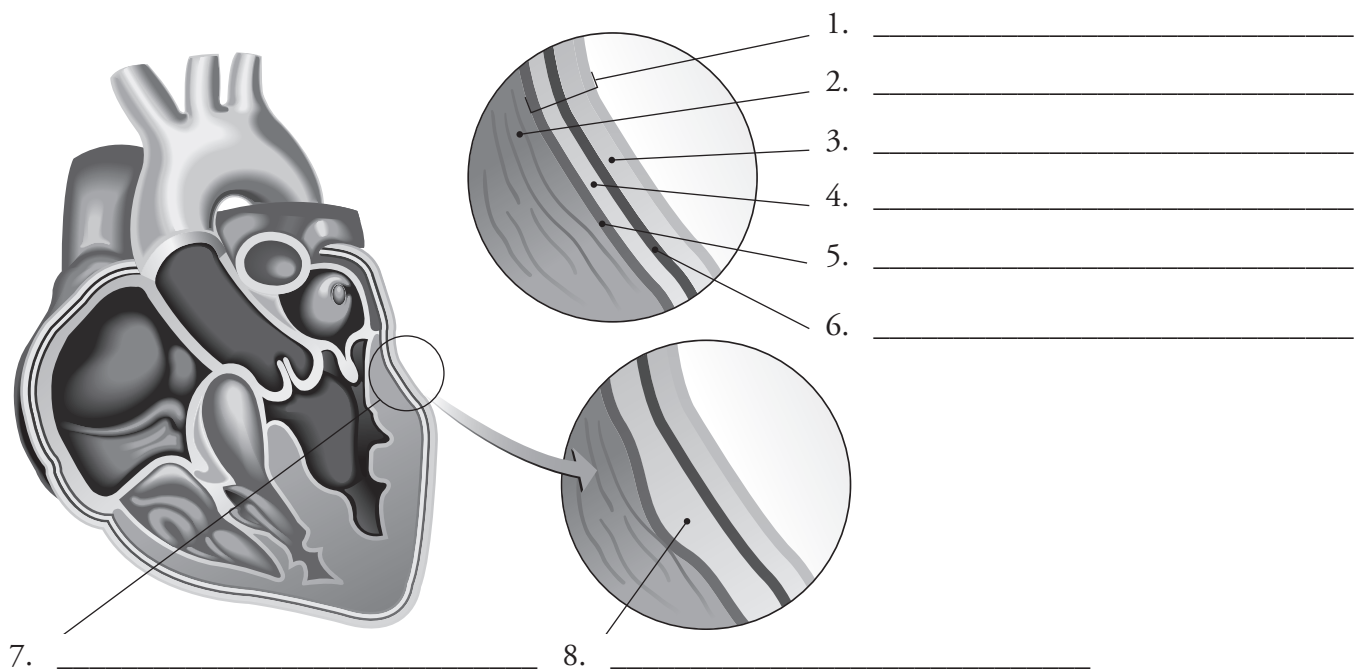
**Fill in the Blank**

1. In one \_\_\_\_\_ your heart pumps enough blood to fill an Olympic-sized swimming pool.
2. The heart generates its own \_\_\_\_\_ signals.
3. Your heart began beating \_\_\_\_\_ days after you were conceived.
4. You have around \_\_\_\_\_ miles of blood vessels in your body.
5. Organs are made of tissues, and tissues are made of \_\_\_\_\_.
6. God created the first man and woman perfect and complete, Adam and Eve, about \_\_\_\_\_ years ago.
7. A normal \_\_\_\_\_ is about the size of a person's fist.
8. On average, the heart moves \_\_\_\_\_ liters of blood per day.
9. God designed the heart with its own \_\_\_\_\_ system.
10. The wall of the heart consists of three layers: the epicardium, the myocardium, and the \_\_\_\_\_.

## Complete the Chart — Thoracic Cavity



## Complete the Chart — Pericardium and Layers of the Heart







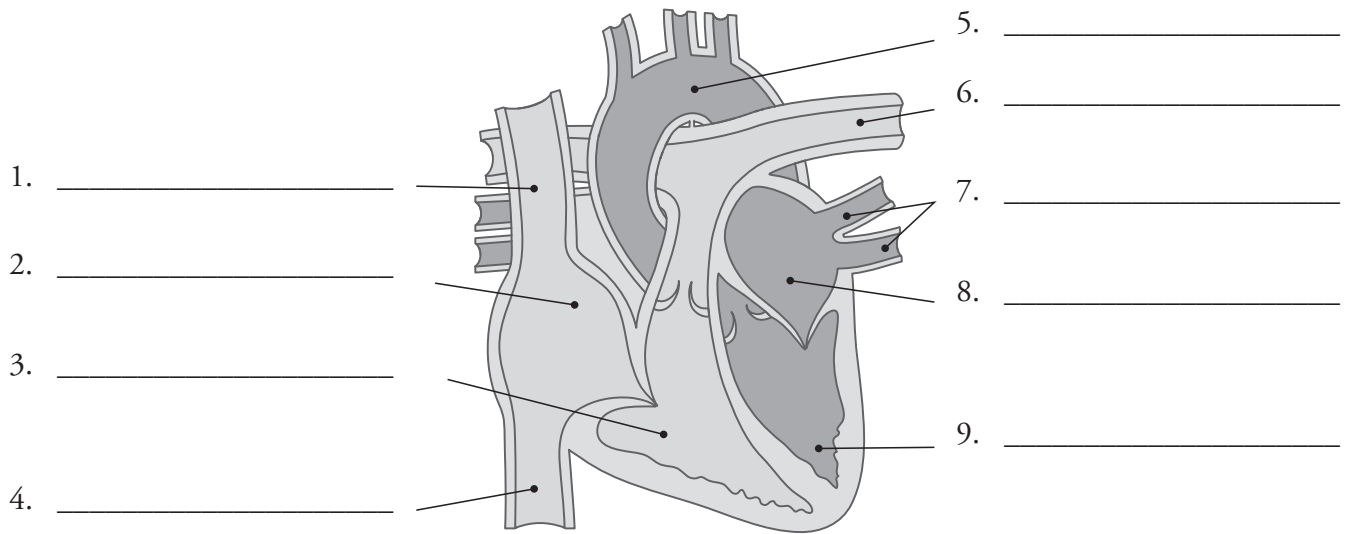
**Words to Know: Define the Following:**

1. Intercalated discs: \_\_\_\_\_
2. Desmosome: \_\_\_\_\_
3. Gap junctions: \_\_\_\_\_
4. Pulmonary circulation: \_\_\_\_\_
5. Systemic circulation: \_\_\_\_\_
6. Artery: \_\_\_\_\_
7. Veins: \_\_\_\_\_
8. Atria: \_\_\_\_\_
9. Pulmonary veins: \_\_\_\_\_
10. Vena cavae: \_\_\_\_\_

**Fill in the Blank**

1. Skeletal \_\_\_\_\_ is attached to the bones of the skeleton.
2. Smooth muscle is found in the walls of most of the hollow \_\_\_\_\_ of the body.
3. Cardiac muscle is found only in the walls of the \_\_\_\_\_.
4. Mitochondria generate energy for the \_\_\_\_\_.
5. \_\_\_\_\_ blood returns to the right side of the heart and gets pumped out to the lungs.
6. \_\_\_\_\_ blood returns to the left side of the heart from the lungs and gets pumped out to the brain and body.
7. Oxygenated blood is a \_\_\_\_\_ red and deoxygenated blood is a more purplish-red color.
8. The human heart has \_\_\_\_\_ chambers.
9. The words \_\_\_\_\_ and inferior when speaking of the body mean “upper” and “lower,” respectively.
10. The walls of the ventricles are made of \_\_\_\_\_ muscle than the atrial walls.

## Complete the Chart — Chambers of the Heart



## **Quizzes and Tests Section**

**Match the words/phrases and their definitions.**

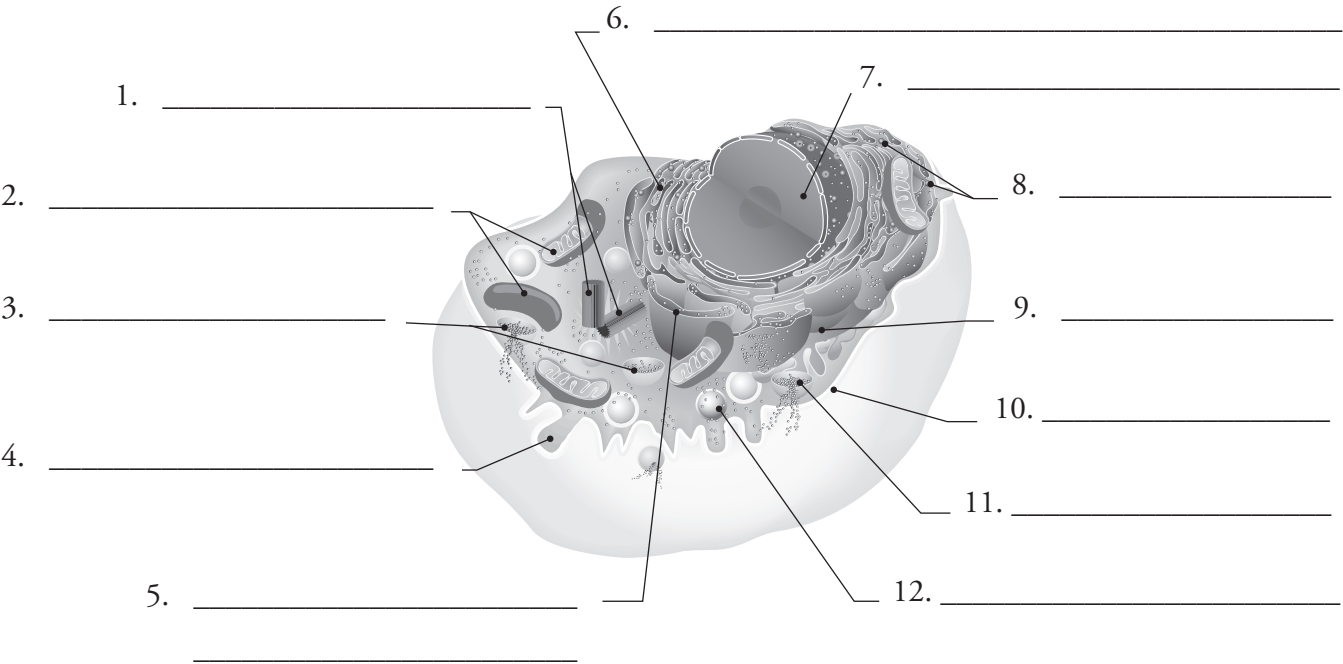
Organs	Exocytosis	Homeostasis	Metabolize	Programmed cell death
Antibodies	Lysosomes	Organ	Anatomy	DNA (deoxyribonucleic acid)

1. \_\_\_\_\_ groups of tissues that have a particular function
2. \_\_\_\_\_ the study of the body's parts and how they are put together
3. \_\_\_\_\_ the process of releasing material from inside the cell
4. \_\_\_\_\_ small vesicles containing enzymes that can digest many kinds of molecules and debris
5. \_\_\_\_\_ a controlled way of "burning" the fuel of the body
6. \_\_\_\_\_ stores the genetic instructions needed to make all the proteins in the body
7. \_\_\_\_\_ fight infectious invaders in your body
8. \_\_\_\_\_ a collection of various types of tissues that work together to perform a function
9. \_\_\_\_\_ the body has many mechanisms to help maintain a balance or "equilibrium" among its many systems
10. \_\_\_\_\_ the process by which some cells are designed to self-destruct.

**Fill in the blank with the correct answer.**

1. Psalm \_\_\_\_\_, says, "I will praise You, for I am fearfully and wonderfully made; marvelous are Your works."
2. Most cells have three basic parts — a nucleus, a cell membrane, and \_\_\_\_\_.
3. \_\_\_\_\_ acids are the building blocks of proteins.
4. The cytosol plus the organelles make up the \_\_\_\_\_.
5. The instructions for what the cell is supposed to do are stored in the \_\_\_\_\_.
6. The cell's favorite fuel is not wood or gasoline but the sugar \_\_\_\_\_.
7. DNA is a complex system of information that is used primarily to make the \_\_\_\_\_ in our body.
8. Collections of organs and structures are called organ \_\_\_\_\_.
9. Proximal and distal: \_\_\_\_\_
10. Superior and inferior: \_\_\_\_\_

**Complete the Chart — Human Cell Structure**



**Match the words/phrases and their definitions.**

Shock    Myocardial ischemia    Cardiac output    Veins    End systolic volume  
Capillaries    The cardiac cycle    Gap junctions    Mitochondria    The cardiovascular center

1. \_\_\_\_\_ tiny power generators that keep the heart muscle continually supplied with energy
2. \_\_\_\_\_ provide a route for electrical signals to be transmitted from muscle cell to muscle cell.
3. \_\_\_\_\_ the name given to the five steps involved in filling the heart's chambers and pumping the blood
4. \_\_\_\_\_ the situation where adequate oxygen is not delivered to the heart muscle
5. \_\_\_\_\_ the amount of blood pumped by the heart in one minute
6. \_\_\_\_\_ the amount of blood left in the ventricle after it contracts
7. \_\_\_\_\_ connect the arteries and veins; get the blood from the arterial system back into the vessels of the venous system
8. \_\_\_\_\_ their primary function is to return blood to the heart
9. \_\_\_\_\_ the part of the nervous system that oversees regulation of the heart and blood vessels
10. \_\_\_\_\_ situations in which the cardiovascular system cannot deliver adequate blood flow to meet the body's needs

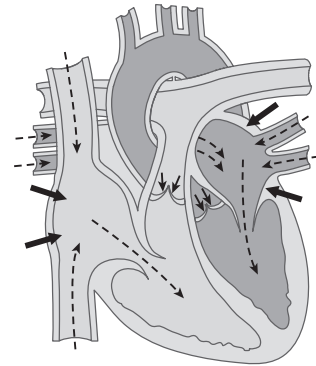
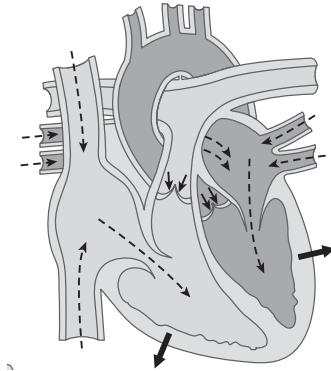
**Fill in the blank with the correct answer.**

1. A normal \_\_\_\_\_ is about the size of a person's fist.
2. The walls of the ventricles are made of \_\_\_\_\_ muscle than the atrial walls.
3. The pressure of the \_\_\_\_\_ inside the ventricles pushes them shut.
4. God designed the \_\_\_\_\_ circulation — a way for the heart to pump blood to itself.
5. Cardiac output is the product of two things: the heart rate (HR) and the \_\_\_\_\_ volume (SV).
6. One of the most common tests performed to detect coronary artery disease is called an exercise test, or a "\_\_\_\_\_ " test.
7. There are five primary types of blood vessels: \_\_\_\_\_, arterioles, veins, venules, and capillaries.
8. Pulse rate is recorded in \_\_\_\_\_ per minute.
9. When a person has a blood pressure that is chronically over 140/90 it is known as \_\_\_\_\_, commonly called "high blood pressure."
10. By some estimates, \_\_\_\_\_ percent of the world's population has hypertension.

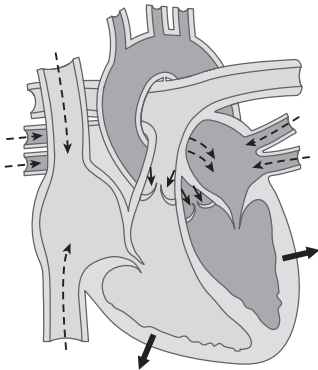


## Complete the Chart — The Cardiac Cycle

1. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

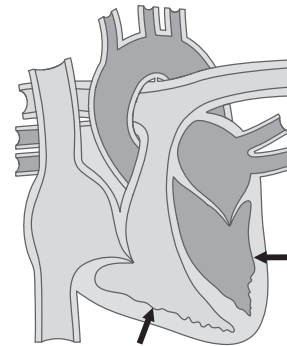
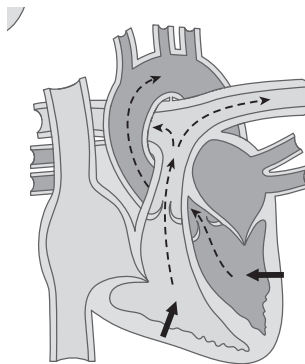


2. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



5. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



3. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## **Answers**

## The Musculoskeletal System — Worksheet Answer Keys

### Worksheet 1

#### Words to Know: Define the Following:

1. **Cells:** the building blocks of life
2. **Anatomy:** the study of the body's parts and how they are put together
3. **Physiology:** the study of how the parts of the body function . . . the study of how everything in the body works
4. **Organs:** groups of tissues that have a particular function
5. **Digestive system:** all the parts that process your food — from your mouth and stomach to your liver and intestines
6. **Nucleus:** directs most of the action in the cell
7. **Cell membrane:** forms the cell's outer border
8. **Cytoplasm:** most of the cell's work gets done here
9. **Erythrocytes:** red blood cells; their main job is to carry oxygen
10. **Nucleus:** the control center of the cell

#### Fill in the Blank

1. vitamin D
2. 200
3. 139:14
4. cells
5. histology
6. heart
7. simple
8. nervous
9. functional
10. cytoplasm

#### Complete the Chart — Human Cell Structure

1. Centrioles
2. Mitochondria
3. Peroxisome
4. Secretory vesicle
5. Smooth endoplasmic reticulum

6. Rough endoplasmic reticulum
7. Nucleus
8. Ribosomes
9. Golgi complex
10. Plasma membrane
11. Lysosome
12. Vesicle

### Worksheet 2

#### Words to Know: Define the Following:

1. **The plasma membrane:** the envelope that contains the other components of the cell
2. **Intracellular fluid:** fluid inside the cells
3. **Extracellular fluid:** fluid that is outside the cells
4. **Water soluble:** something that can dissolve in water
5. **Lipid:** another name for a fat
6. **Hydrophilic:** a word that literally means “water-loving”
7. **Hydrophobic:** a word that literally means “water-fearing”
8. **Exocytosis:** the process of releasing material from inside the cell
9. **Cytosol:** the liquid found inside the cell
10. **Lysosomes:** small vesicles containing enzymes that can digest many kinds of molecules and debris

#### Fill in the Blank

1. membrane
2. phospholipids
3. bilayer
4. cytoplasm
5. Amino
6. endoplasmic
7. Golgi
8. Lysosomes
9. nutrition

## The Cardiovascular & Respiratory System — Worksheet Answer Keys

### Worksheet 20

#### Words to Know: Define the Following:

1. **Cardiovascular system:** the heart, with all its associated vessels
2. **Respiratory system:** gets oxygen from the air; you need oxygen to live; also gets rid of the carbon dioxide your body makes, and consists of the lungs and all the tubes
3. **Physiology:** how the systems of the body work
4. **Skeletal muscles:** muscles that enable you to walk or use your hands
5. **Mitochondria:** tiny power-generators that keep the heart muscle continually supplied with energy
6. **Esophagus:** carries the food you swallow to your stomach
7. **Trachea:** carries the air you breathe to your lungs
8. **Diaphragm:** a large sheet of skeletal muscle that separates the chest cavity from the abdominal cavity
9. **Pericardium:** this sac goes around the heart
10. **Epicardium:** made mostly of connective tissue and provides a protective covering for the surface of the heart

#### Fill in the Blank

1. year
2. electrical
3. 22
4. 60,000
5. cells
6. 6,000
7. heart
8. 7,200
9. lubrication
10. endocardium

#### Complete the Chart — Thoracic Cavity

1. Spine

2. Esophagus
3. Trachea
4. Bronchus
5. Sternum
6. Rib
7. Lung
8. Heart
9. Inferior vena cava
10. Descending aorta
11. Stomach

#### Complete the Chart — Pericardium and Layers of the Heart

1. Normal pericardium
2. Cardiac muscle
3. Fibrous pericardial
4. Pericardial cavity
5. Visceral pericardial
6. Parietal pericardial
7. Pericardium
8. Pericardial effusion

### Worksheet 21

#### Words to Know: Define the Following:

1. **Intercalated discs:** at the end of cardiac muscle cells are thick areas of the surrounding plasma membrane
2. **Desmosome:** helps hold the muscle fibers together as they contract
3. **Gap junctions:** provide a route for electrical signals to be transmitted from muscle cell to muscle cell
4. **Pulmonary circulation:** the right-sided circulation
5. **Systemic circulation:** the left-sided circulation
6. **Artery:** the name given to a blood vessel in which blood moves away from the heart
7. **Veins:** vessels carrying blood toward the heart

8. **Atria:** plural of atrium; collect blood as it returns to the heart
9. **Pulmonary veins:** the veins that bring blood from the lungs to the left atrium
10. **Vena cavae:** the veins that bring blood back from the brain and the body

#### Fill in the Blank

1. muscle
2. organs
3. heart
4. cell
5. Deoxygenated
6. Oxygenated
7. brighter
8. four
9. superior
10. thicker

#### Complete the Chart — Chambers of the Heart

1. Superior vena cavae
2. Right atrium
3. Right ventricle
4. Inferior vena cavae
5. Aorta
6. Pulmonary artery
7. Pulmonary vein
8. Left atrium
9. Left ventricle

#### Worksheet 22

##### Words to Know: Define the Following:

1. **Tricuspid valve:** blood passes from the right atrium into the right ventricle through this
2. **Bicuspid valve:** blood passes from the left atrium into the left ventricle through this
3. **Mitral:** used for the bicuspid valve because the two cusps look a little like a bishop's headdress, called a miter
4. **Chordae tendineae:** the ties that bind the cusps to the ventricular wall; this Latin name means

"heart strings"

5. **Semilunar valves:** the valves guarding the exit from the ventricles
6. **Pulmonary valve:** the semilunar valve between the right ventricle and the pulmonary artery
7. **Incompetent:** a valve that is damaged and allows blood under high pressure to leak backward, where a whooshing murmur may be heard
8. **Stenosis:** if a damaged valve is stiff and does not open normally, the outflow of blood is impeded
9. **The cardiac cycle:** the name given to the five steps involved in filling the heart's chambers and pumping the blood
10. **Atrial systole:** after the passive filling of the ventricles, when the atria simultaneously contract

#### Fill in the Blank

1. valve
2. cusp
3. blood
4. half
5. murmurs
6. filling
7. 1816
8. systole
9. relax
10. backward

#### Complete the Chart — The Cardiac Cycle

1. The "filling phase" when the whole heart is relaxed (atrial and ventricular diastole)
2. The atria contract — atrial systole
3. The beginning of ventricular systole, enough to close the tricuspid and mitral valves
4. Ejection of blood from the heart as ventricular systole (contraction) continues, forcing their exit valves (the semilunar valves) open
5. Ventricular diastole — ventricles relax enough to allow their exit valves (the semilunar valves) to close

## The Musculoskeletal System — Quizzes and Test Answer Keys

### Quiz: Section One

#### Match the words/phrases and their definitions.

1. **Organs:** groups of tissues that have a particular function
2. **Anatomy:** the study of the body's parts and how they are put together
3. **Exocytosis:** the process of releasing material from inside the cell
4. **Lysosomes:** small vesicles containing enzymes that can digest many kinds of molecules and debris
5. **Metabolize:** a controlled way of “burning” the fuel of the body
6. **DNA (deoxyribonucleic acid):** stores the genetic instructions needed to make all the proteins in the body
7. **Antibodies:** fight infectious invaders in your body
8. **Organ:** a collection of various types of tissues that work together to perform a function
9. **Homeostasis:** the body has many mechanisms to help maintain a balance or “equilibrium” among its many systems
10. **Programmed cell death:** the process by which some cells are designed to self-destruct.

#### Fill in the blank with the correct answer.

1. 139:14
2. cytoplasm
3. Amino
4. cytoplasm
5. nucleus
6. glucose
7. proteins
8. systems
9. Proximal and distal: describe whether something is closer or farther away from the middle of the body
10. Superior and inferior: describe whether something is above or below something else.

### Complete the Chart — Human Cell Structure

1. Centrioles
2. Mitochondria
3. Peroxisome
4. Secretory vesicle
5. Smooth endoplasmic reticulum
6. Rough endoplasmic reticulum
7. Nucleus
8. Ribosomes
9. Golgi complex
10. Plasma membrane
11. Lysosome
12. Vesicle

### Quiz: Section Two

#### Match the words/phrases and their definitions.

1. **Bone marrow:** helps to create red and white blood cells
2. **Periosteum:** the outermost layer of bone, which is a thin, fibrous membrane
3. **Osteo:** the Greek word for “bone”
4. **Chondrocytes:** these cells are what make cartilage
5. **Enzymes:** special proteins that speed up and control chemical reactions in the body
6. **Arthritis:** inflammation of one or more joints
7. **Callus:** a cartilage-like layer of tissue that forms inside a fracture
8. **Articulate:** connected by a joint
9. **Axial skeleton:** made up of the skull, the vertebral column, and the ribs
10. **Upper limb:** consists of the pectoral (or shoulder) girdle, arm, forearm, wrist, and hand

#### Fill in the blank with the correct answer.

1. support
2. compact
3. blood



9. **Excitability:** means that muscle can respond to a stimulus or a trigger
10. **Muscle tone:** refers to the fact that there is some tension in a muscle even when it is not being actively contracted

**Fill in the blank with the correct answer.**

1. cytosol
2. collagen
3. bones
4. cartilage
5. knees

6. 26
7. support
8. contracts
9. contract
10. breathe

**Complete the Chart — Skeletal Muscle Fiber**

1. Sarcolemma
2. Mitochondria
3. Myofibrils
4. Sarcoplasmic reticulum
5. Nucleus

## ***The Cardiovascular & Respiratory System* — Quizzes and Tests Answer Keys**

### **Quiz: Section One**

**Match the words/phrases and their definitions.**

1. **Mitochondria:** tiny power generators that keep the heart muscle continually supplied with energy
2. **Gap junctions:** provide a route for electrical signals to be transmitted from muscle cell to muscle cell.
3. **The cardiac cycle:** the name given to the five steps involved in filling the heart's chambers and pumping the blood
4. **Myocardial ischemia:** the situation where adequate oxygen is not delivered to the heart muscle
5. **Cardiac output:** the amount of blood pumped by the heart in one minute
6. **End systolic volume:** the amount of blood left in the ventricle after it contracts
7. **Capillaries:** connect the arteries and veins; get the blood from the arterial system back into the vessels of the venous system
8. **Veins:** their primary function is to return blood to the heart
9. **The cardiovascular center:** the part of the nervous system that oversees regulation of the heart and blood vessels
10. **Shock:** situations in which the cardiovascular

system cannot deliver adequate blood flow to meet the body's needs

**Fill in the blank with the correct answer.**

1. heart
2. thicker
3. blood
4. coronary
5. stroke
6. stress
7. arteries
8. beats
9. hypertension
10. 25

**Complete the Chart — The Cardiac Cycle**

1. The "filling phase" when the whole heart is relaxed (atrial and ventricular diastole)
2. The atria contract — atrial systole
3. The beginning of ventricular systole, enough to close the tricuspid and mitral valves
4. Ejection of blood from the heart as ventricular systole (contraction) continues, forcing their exit valves (the semilunar valves) open
5. Ventricular diastole — ventricles relax enough to allow their exit valves (the semilunar valves) to close