ANATOMICAL POSITION AND TERMS OF DIRECTION

When studying the human body it is important to place the body in anatomical position. Anatomical position is described as the body facing you, feet placed together and flat on the floor. The head is held erect, arms straight by the side with palms facing forward. All references to the body are made as if the body is in this position so when you describe something as being above something else it is always with respect to the body being in anatomical position.

The relative position of the parts of the human body has specific terms. Superior means above while inferior means below. Medial refers to being close to the midline while lateral means to the side. Anterior or ventral is to the front while posterior or dorsal is to the back. Superficial is near the surface while deep means to the core of the body. When working with the limbs, proximal means closer to the trunk while distal is to the ends of the extremities. Write the directional terms in the spaces provided and color in the arrows in reference to these terms. Note that these terms are somewhat different for four legged animals.

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I.

ANATOMICAL PLANES OF THE BODY

Many specimens in anatomy are sectioned so that the interior of the organ or region can be examined. It is important that the direction of the cut is known so that the proper orientation of the specimen is known. A heart looks very different if it is cut along its length as opposed to horizontally. A horizontal cut is known as a transverse section or a cross section. A cut that divides the body or an organ into anterior and posterior parts is a coronal section or frontal section. One that divides the structure into left and right parts is a sagittal section. If the body is divided directly down the middle the section is known as a mid sagittal section. A mid sagittal section is usually reserved for dividing the body into its equal left and right parts. If an organ (such as the eye) is sectioned into two equal parts such that there is a left and right half then this is known as a median section. Label the illustrations and color in the appropriate planes.

Answer Key: a. Frontal (coronal) plane
b. Transverse (cross-section) plane
c. Median (mid sagittal) plane
Chapter One

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b. c.
HIERARCHY OF THE BODY

The human body can be studied at different levels. Organs such as the stomach can be grouped into organ systems (digestive system) or can be studied on a smaller scale like the cellular level. The ranking of these levels is called a hierarchy. The smallest organizational unit is the atom. Individual atoms are grouped into larger structures called molecules. These in turn make up organelles, which are part of a larger, more complicated systems called cells. Cells are the structural and functional units of life. Cells are clustered into tissues. Organs are discrete units made up of two or more tissues and organs are grouped into organ systems that compose the organism. Label the levels of the hierarchy and color each item a different color.
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~a.

b. _

   o g.-----

c. -----

d. _

Answer Key: a. Organism (human), b. Organ system (respiratory system) c. Organ (lung), d. Tissue (epithelium), e. Organelle (cilia), f. Molecule, g. Atom, h. cells
REGIONS OF THE ABDOMEN

In anatomy the abdomen is divided into nine regions. Write the names of the regions in the spaces indicated. Color both the left and right hypochondriac regions in light blue. Hypochondriac means “below the cartilage.” The common use of the word (someone who thinks they are sick all the time) reflects the Greek origin of the word as the ancient Greeks considered the region to be the source of sadness. Inferior to the hypochondriac regions are the lumbar or lateral abdominal regions. These are commonly known as “love handles.” Use yellow for these regions. Below the lumbar regions are the inguinal or iliac regions. You should color in these regions with the same shade of green. In the middle of the abdomen is the umbilical region. Color this region in red. Above this is the epigastric region (epi = above and gastron = stomach). Color this region in purple. Below the umbilical region is the hypogastric region (hypo = below). Color this region in a darker blue.

In clinical settings a quadrant approach is used. Write the names of the regions (right upper quadrant, left upper quadrant, right lower quadrant, left lower quadrant) in the spaces provided. Color each quadrant a different color.

Answer Key: a. Right hypochondriac; b. Right lumbar (lateral abdominal); c. Umbilical; d. Right inguinal or iliac; e. Epigastric; f. Left hypochondriac; g. Left lumbar (lateral abdominal); h. Left inguinal or iliac; i. Hypogastric; j. Right upper quadrant; k. Right lower quadrant; l. Left lower quadrant; m. Left upper quadrant.
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Answer Key:
- a. Right hypochondriac
- b. Right lumbar (lateral abdominal)
- c. Umbilical
- d. Right inguinal or iliac
- e. Epigastric
- f. Left hypochondriac
- g. Left lumbar (lateral abdominal)
- h. Left inguinal or iliac
- i. Hypogastric
- j. Left upper quadrant
- k. Right upper quadrant
- l. Left lower quadrant
- m. Right lower quadrant

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ORGAN SYSTEMS

The human body is either studied by regions or by organ systems. This book uses the organ system approach in which individual organs (such as bones) are grouped into larger organ systems (for example, the skeletal system). Typically, eleven organ systems are described. The skeletal system consists of all the bones of the body. Examples are the femur and the humerus. The nervous system consists of the nerves, spinal cord, and brain while the lymphatic system consists of lymph glands, conducting tubes called lymphatics, and organs such as the spleen. The term immune system is more of a functional classification and will not be treated as a separate system here. The muscular system consists of individual skeletal muscles as organs such as the pectoralis major and deltoid. Label the organ systems underneath each illustration and label the selected organs by using the terms available. When you finish, select different colors for each organ system and color them in.

<table>
<thead>
<tr>
<th>Organ System</th>
<th>Organ</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Skeletal system</td>
<td>Femur</td>
<td>Humerus</td>
<td>Brain</td>
</tr>
<tr>
<td>Nervous system</td>
<td>Nerves</td>
<td>Spinal cord</td>
<td>Spine</td>
</tr>
<tr>
<td>Lymphatic system</td>
<td>Lymph glands</td>
<td>Pectoralis major</td>
<td>Deltoid</td>
</tr>
</tbody>
</table>

Answer Key:

a. Humerus
b. Femur
r. Skeletal
d. Brain
e. Spinal cord
f. Nerves
g. Vena cava
h. Spleen
i. Lymph nodes
j. Lymphatic
k. Deltoid
l. Pectoralis major
m. Muscular
ORGAN SYSTEMS

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finish, select different colors for each organ system and color them in. skeletal system).

Label the organ systems underneath each illustration and label the selected organs by using the terms available.
I.----

ORGAN SYSTEMS (CONTINUED)

The skin and other structures are in the integumentary system and the digestive system involves the breakdown and absorption of food with organs such as the esophagus and stomach. The endocrine system is made of the glands that secrete hormones such as the thyroid gland and the adrenal glands. The respiratory system involves the transfer of oxygen and carbon dioxide between the air and the blood. The respiratory system consists of organs such as the trachea and lungs.

Label the organ systems underneath each illustration and label the selected organs by using the terms available. When you finish, select different colors for each organ system and color them in.

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</thead>
<tbody>
<tr>
<td>Integumentary</td>
<td>Skin</td>
<td>Stomach</td>
</tr>
<tr>
<td>Digestive</td>
<td>Esophagus</td>
<td>Adrenal</td>
</tr>
<tr>
<td>Endocrine</td>
<td>Thyroid</td>
<td>glands</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Trachea</td>
<td>Lungs</td>
</tr>
</tbody>
</table>

**Answer Key:** a. Skin, b. Integumentary, c. Esophagus, d. Stomach, e. Digestive, f. Thyroid gland, g. Adrenal gland, h. Endocrine, i. Trachea, j. Lung, k. Respiratory

**ORGAN SYSTEMS (CONTINUED)**

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11 Introduction

Label the organ systems underneath each illustration and label the selected organs by using the terms available. When you finish, select different colors for each organ system and color them in.
Organ System

Integumentary system

Digestive system

Stomach

Endocrine system

Adrenal glands

Respiratory system

Lungs

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Organ Skin

Esophagus

Thyroid gland

Trachea
ORGAN SYSTEMS (CONTINUED)

The **heart** and associated **blood vessels** compose the **cardiovascular system** which circulates blood throughout the body. The **urinary system** filters, stores, and conducts some wastes from the body. The **bladder** and **urethra** are part of the **urinary system**. The **testes** and **ovaries** are part of the **reproductive system** and this system perpetuates the species. The differentiation of male and female systems makes this organ system unique among the other systems. These eleven organs systems can be remembered by the memory clue **LNC Cries Drum**. Each letter represents the first letter of a name of an organ system. Label the organ systems underneath each illustration and label the selected organs by using the terms available. When you finish, select different colors for each organ system and color them in.

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<td>Cardiovascular</td>
<td>Heart</td>
<td>Blood vessels</td>
</tr>
<tr>
<td>Urinary</td>
<td>Bladder</td>
<td>Urethra</td>
</tr>
<tr>
<td>Reproductive</td>
<td>Testes</td>
<td>Ovaries</td>
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Chapter One
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**ORGAN SYSTEMS (CONTINUED)**

The heart and associated blood vessels compose the cardiovascular system which circulates blood throughout the body. The urinary system filters, stores, and conducts some wastes from the body. The bladder and urethra are part of the urinary system. The testes and ovaries are part of the reproductive system and this system perpetuates the species. The differentiation of male and female systems makes this organ system unique among the other systems. These eleven organs systems can be remembered by the memory clue LN Cries Drum. Each letter represents

Organ System

Organ

Organ Cardiovascular system

Heart

Organ Blood vessels Urinary system

Bladder

Blood vessels Urinary system

Urethra Reproductive system

Testes

Ovaries

a. - _

b. ----

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c. _

h. _


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I. Reproductive
There are specific anatomical terms for regions of the body. These areas or regions frequently have Greek or Latin names because early western studies in anatomy occurred in Greece and Rome. During the Renaissance, European scholars studied anatomy and applied the ancient names to the structures.

Label the various regions of the body and fill in their names. You can use a standard anatomy text or follow the key at the bottom of the page. A list of terms and their common names follows for the anterior side of the body. Color in the regions of the body.

- cranial (head)
- facial (face)
- cervical (neck)
- deltoid (shoulder)
- pectoral (chest)
- sternal (center of chest)
- brachial (arm)
- antebrachial (forearm)
- manual (hand)
- digital (fingers)
- abdominal (belly)
- inguinal (groin)
- coxal (hip)
- femoral (thigh)
- genicular (knee)
- crural (leg)
- pedal (foot)
- digital (toe)

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BODY REGIONS (POSTERIOR)

For the posterior view of the body fill in the terms and color the regions of the body. The anatomical names are given first with the common names in parentheses.

cephalic (head)

nuchal (neck)

scapular (shoulder blade)

vertebral (backbone)

lumbar (lower back)

brachial (arm)

electron (elbow)

antebrachial (forearm)

gluteal (buttock)

femoral (thigh)

popliteal (back of knee)

sural (calf)

calcaneal (heel)


BODY REGIONS (POSTERIOR)

For the posterior view of the body fill in the terms and color the regions of the body. The anatomical names are given first with the
common names in parentheses.

cephalic (head) nuchal (neck) scapular (shoulder blade) vertebral (backbone) lumbar (love handles) brachial (arm) olecranon (elbow) antebrachial (forearm) gluteal (buttocks) femoral (thigh) popliteal (back of knee) sural (calf) calcaneal (heel)


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BODY CAVITIES

The organs of the body are frequently found in body cavities. The body is divided into two main cavities, the **dorsal body cavity** and the **ventral body cavity**. The dorsal body cavity consists of the **cranial cavity**, which houses the brain and the **spinal canal**, which surrounds the spinal cord. The ventral body cavity contains the **upper thoracic cavity**, which is subdivided into the **pleural cavities**, housing the lungs, and the **mediastinum**. The mediastinum contains the heart in the **pericardial cavity**, the major vessels near the heart, nerves, and the esophagus.

Below the thoracic cavity is the **abdominopelvic cavity**, which contains the upper **abdominal cavity**, housing the digestive organs, and the **inferior pelvic cavity**, which holds the uterus and rectum in females or just the rectum in males. Label the specific and major cavities of the body and color them with different colors.

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**Answer Key:**

- a. Dorsal body cavity.
- b. Cranial cavity.
- c. Spinal canal.
- d. Ventral body cavity.
- e. Thoracic cavity.
- f. Mediastinum.
- g. Pericardial cavity.
- h. Abdominal cavity.
- i. Abdominopelvic cavity.
- j. Pelvic cavity.
- k. Pleural cavity.
BODY CAVITIES

The mediastinum contains the heart in the pericardial cavity, the major vessels near the heart, nerves, and the esophagus. The organs of the body are frequently found in body cavities. The body is divided into two main cavities, the dorsal body cavity and the ventral body cavity. Below the thoracic cavity is the abdominopelvic cavity, which contains the upper abdominal cavity, housing the digestive organs, and the body cavity. The dorsal body cavity consists of the cranial cavity, which houses the brain and the spinal canal, which surrounds the spinal cord, just the rectum in males. Label the specific and major cavities of the body and color them with different colors.