

Honors A&P Summer Work 2026

Purpose: This summer assignment provides you with a foundation of vocabulary that will be used in Honors A&P. In many ways, learning anatomical terminology is like learning a new language.

Learning these terms over the summer provides three benefits:

- 1) you will build a strong foundation of anatomic and medical terms,
- 2) you will become familiar with looking at and understanding anatomical images, and
- you will learn study techniques which work for you to learn this new material, as we will be learning many more new terms and structures during the upcoming year.

Directions:

On pages with text and wide left-hand margins:

Read the text and highlight/underline key points. In the left-hand margin, summarize key points in the text. The summary does not need to be extensive, and should be in your own words.

On coloring pages:

Follow the coloring guide provided at the top of the page. Use colored pencils, or shade lightly with crayon. Do not use heavy markers which occlude the underlying numbers and texture lines provided on the figure. Work neatly. MOST IMPORTANTLY – “meditate” on the names of the structures you are coloring to learn the terminology effectively. When working with directional terminology (anterior/posterior, ventral/dorsal), relate the terms to your own body.

On labeling pages:

Write in the names of the labels legibly using pencil.

This work will be graded!

You will turn in the packet on the FIRST DAY of school for grading.

This packet is worth one 5-point homework grade, so it is low-stakes.

For perspective, there are 15-20 homework assignments in semester 1.

This packet is graded on completion and correctness.

All the “fill in the blanks” answers are provided on the diagrams included for reference.

To receive full credit, you must have all the coloring pages completed neatly, and at least 95% of the “fill in the blanks” correct.

There will be a quiz on anatomical terminology at the end of the second week of school.

Study of the human body requires an organized visualization of its internal parts. Dissection (*dis*, apart; *sect*, cut) is the term given to preparation of the body for general or specific internal inspection. Internal body structure is studied in sections cut along imaginary flat surfaces called *planes*. These planes are applied to the erect, standing body with limbs extended along the sides of the body, palms and toes forward, thumbs outward. See this "anatomical position" in the following page. Views of the internal body in life and after death can be obtained by a number of techniques that produce computer-generated representational images of human structure in series (sections) along one or more planes. These anatomic images may be produced by computerized tomography (CT) and magnetic resonance imaging (MRI).

The **median plane** is the midline longitudinal plane dividing the head and torso into right and left halves. The presence of the sectioned midline of the vertebral column and spinal cord is characteristic of this plane. Planes parallel to the median plane are sagittal. Watch out! "Medial" is not a plane.

The **sagittal plane** is a longitudinal plane dividing the body (head, torso, limbs) or its parts into left and right parts (*not* halves). It is parallel to the median plane.

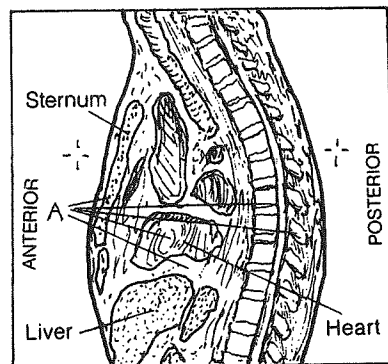
The **coronal or frontal plane** is a longitudinal plane dividing the body or its parts into front and back *halves or parts*. These planes are perpendicular to the median and sagittal planes.

The **transverse or cross plane** divides the body into upper and lower halves or parts (cross sections). This plane is perpendicular to the longitudinal planes. Transverse planes are horizontal planes of the body in the anatomical position.

ORIENTATION TO THE BODY ANATOMIC PLANES & SECTIONS

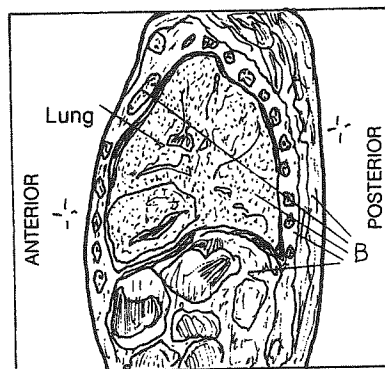
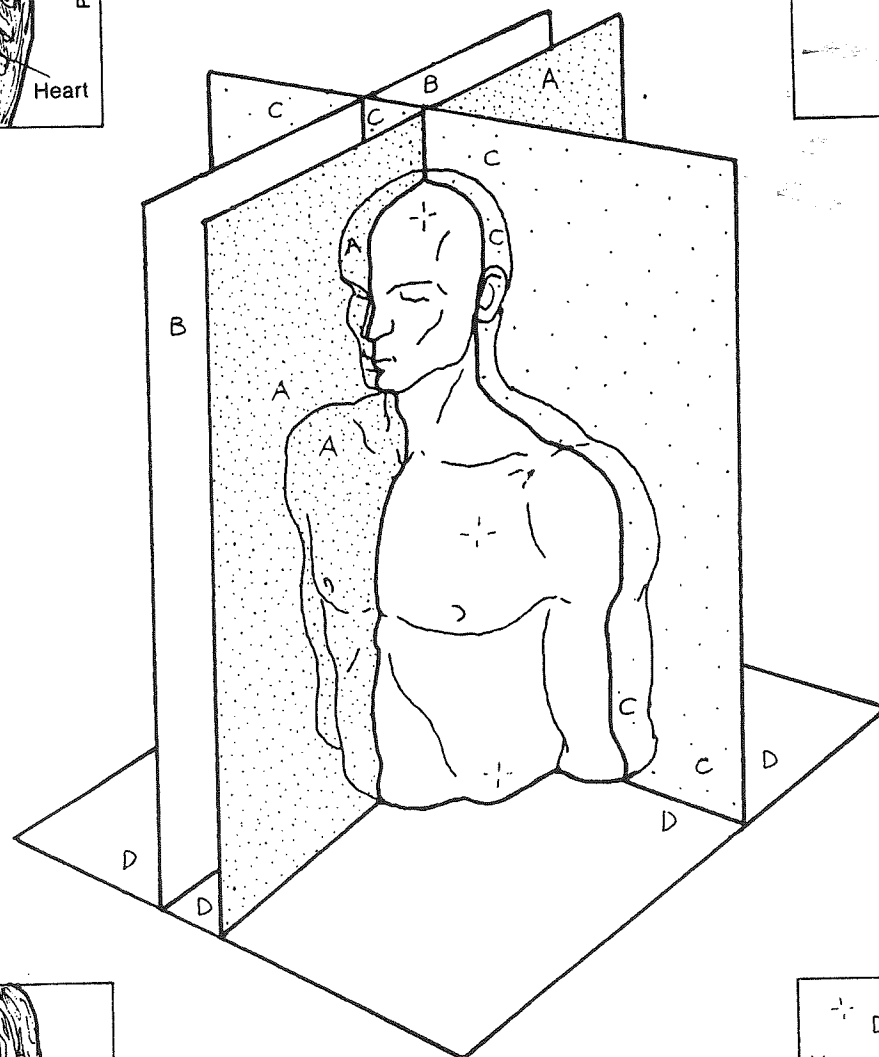
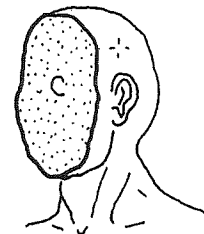
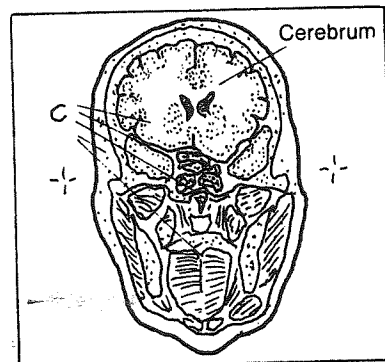
CN: Use your lightest colors on A-D. (1) Color a body plane in the center diagram; then color its name, related sectional view, and the sectioned body example. (2) Color everything within the dark outlines of the sectional views.

MEDIAN^A
SAGITTAL^B
CORONAL, FRONTAL^C
TRANSVERSE, CROSS^D

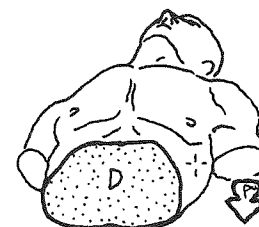


Median section through the thorax

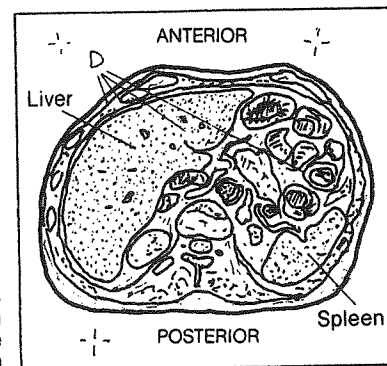
Coronal section through the head



Sagittal section through the thorax



Cross section through the abdomen



Terms of position and direction describe the relationship of one structure on/in the body to another with reference to the *anatomical position*: body standing erect, limbs extended, palms of the hands forward, thumbs directed outwardly.

Cranial and **superior** refer to a structure being closer to the top of the head than another structure in the head, neck, or torso (excluding limbs).

Anterior refers to a structure being more in front than another structure in the body. **Ventral** refers to the abdominal side; in bipeds, it is synonymous with anterior. **Rostral** refers to a beak-like structure in the front of the head or brain that projects forward.

Posterior and **dorsal** refer to a structure being more in back than another structure in the body. *Dorsal* is synonymous with *posterior* (the preferred term) except in quadrupeds.

Medial refers to a structure that is closer to the median plane than another structure in the body.

Lateral refers to a structure that is farther away from the median plane than another structure in the body.

Employed only with reference to the limbs, **proximal** refers to a structure being closer to the median plane or root of the limb than another structure in the limb.

Employed only with reference to the limbs, **distal** refers to a structure being farther away from the median plane or the root of the limb than another structure in the limb.

Caudal and **inferior** refer to a structure being closer to the feet or the lower part of the body than another structure in the body. These terms are not used with respect to the limbs. In quadrupeds, *caudal* means closer to the tail.

The term **superficial** is synonymous with *external*, the term **deep** with *internal*. Related to the reference point on the chest wall, a structure closer to the surface of the body is superficial; a structure farther away from the surface is deep.

Ipsilateral means "on the same side" (in this case, as the reference point); **contralateral** means "on the opposite side" (of the reference point).

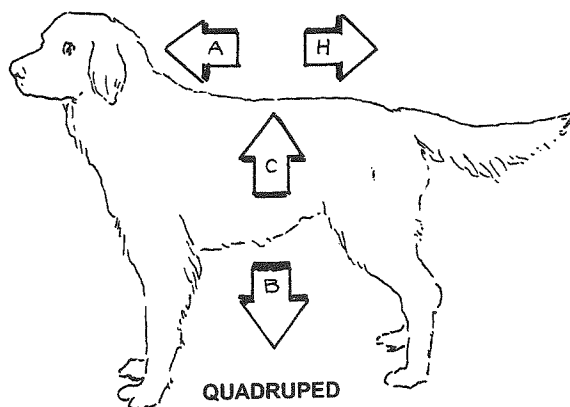
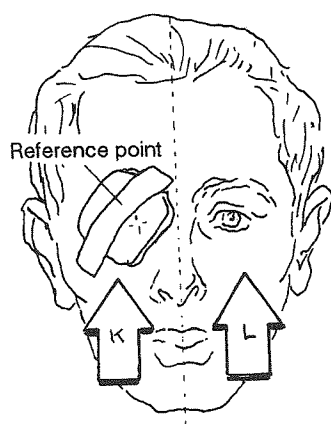
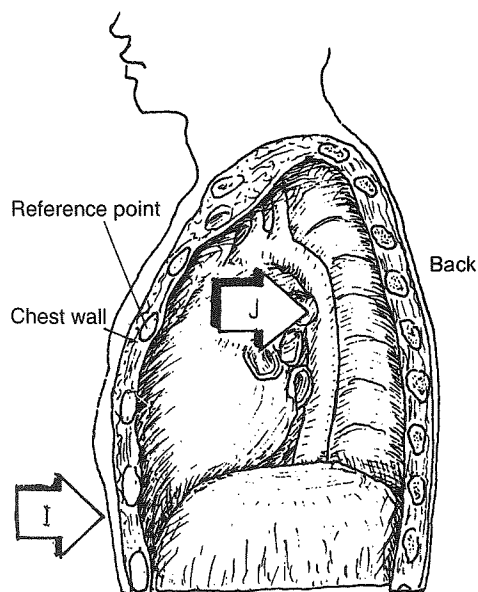
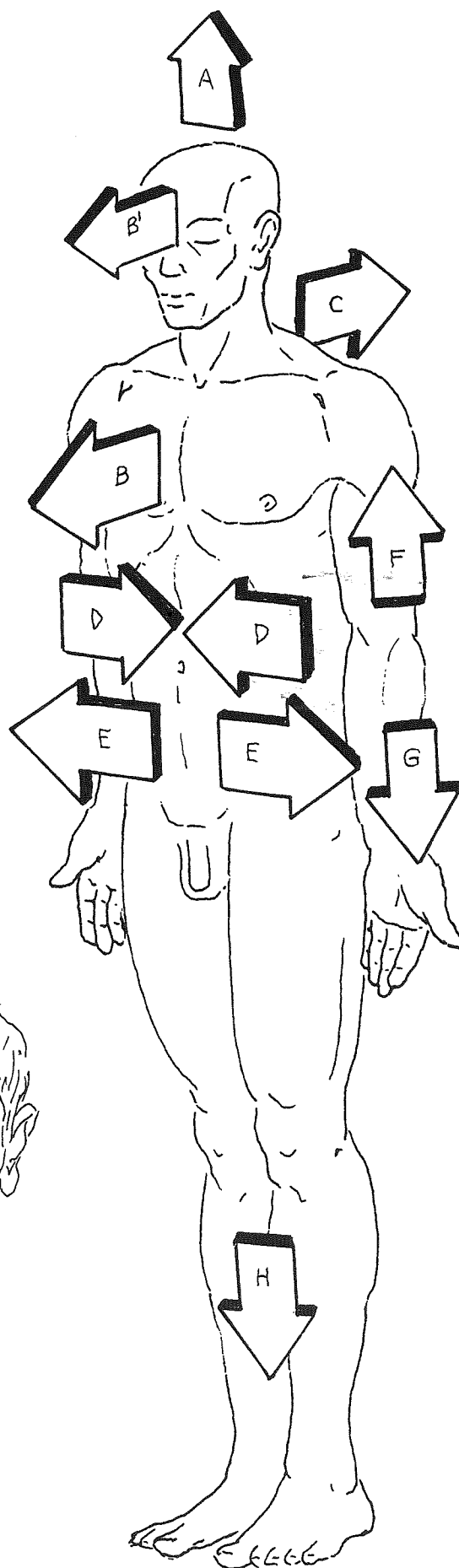
The **quadruped** presents four points of direction: head end (cranial), tail end (caudal), belly side (ventral), and back side (dorsal).

ORIENTATION TO THE BODY TERMS OF POSITION & DIRECTION

2
See 1

CN: Color the arrows and the names of the positions and directions, but not the illustrations.

CRANIAL, SUPERIOR, A
ANTERIOR, VENTRAL B
ROSTRAL B
POSTERIOR, DORSAL C
MEDIAL D
LATERAL E
PROXIMAL F
DISTAL G
CAUDAL, INFERIOR H
SUPERFICIAL I
DEEP J
IPSILATERAL K
CONTRALATERAL L



CLOSED BODY CAVITIES

Closed body cavities are not open to the outside of the body. Though organs may pass through them or exist in them, their cavities do not open into these closed cavities. Closed body cavities are lined with a membrane.

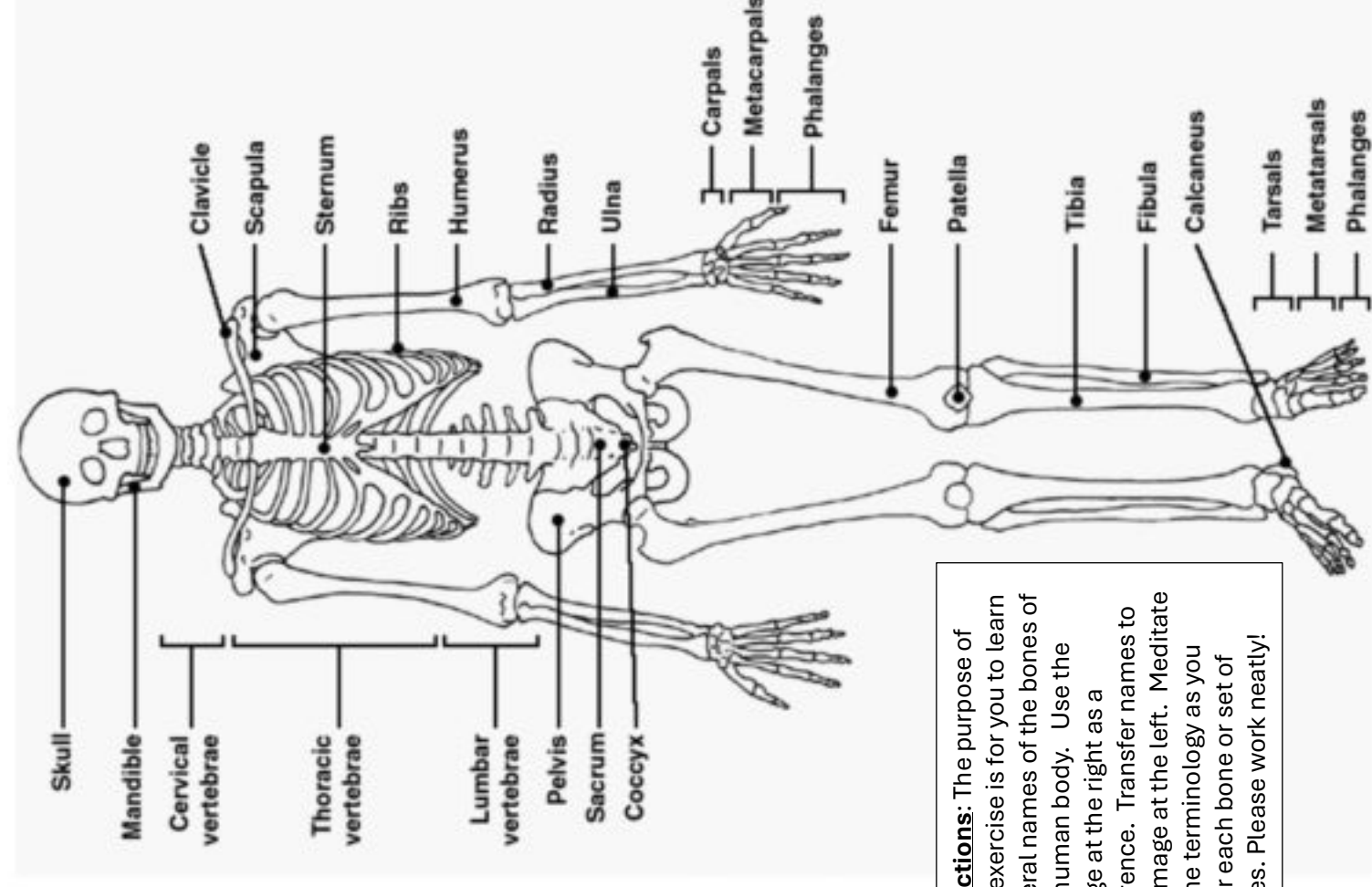
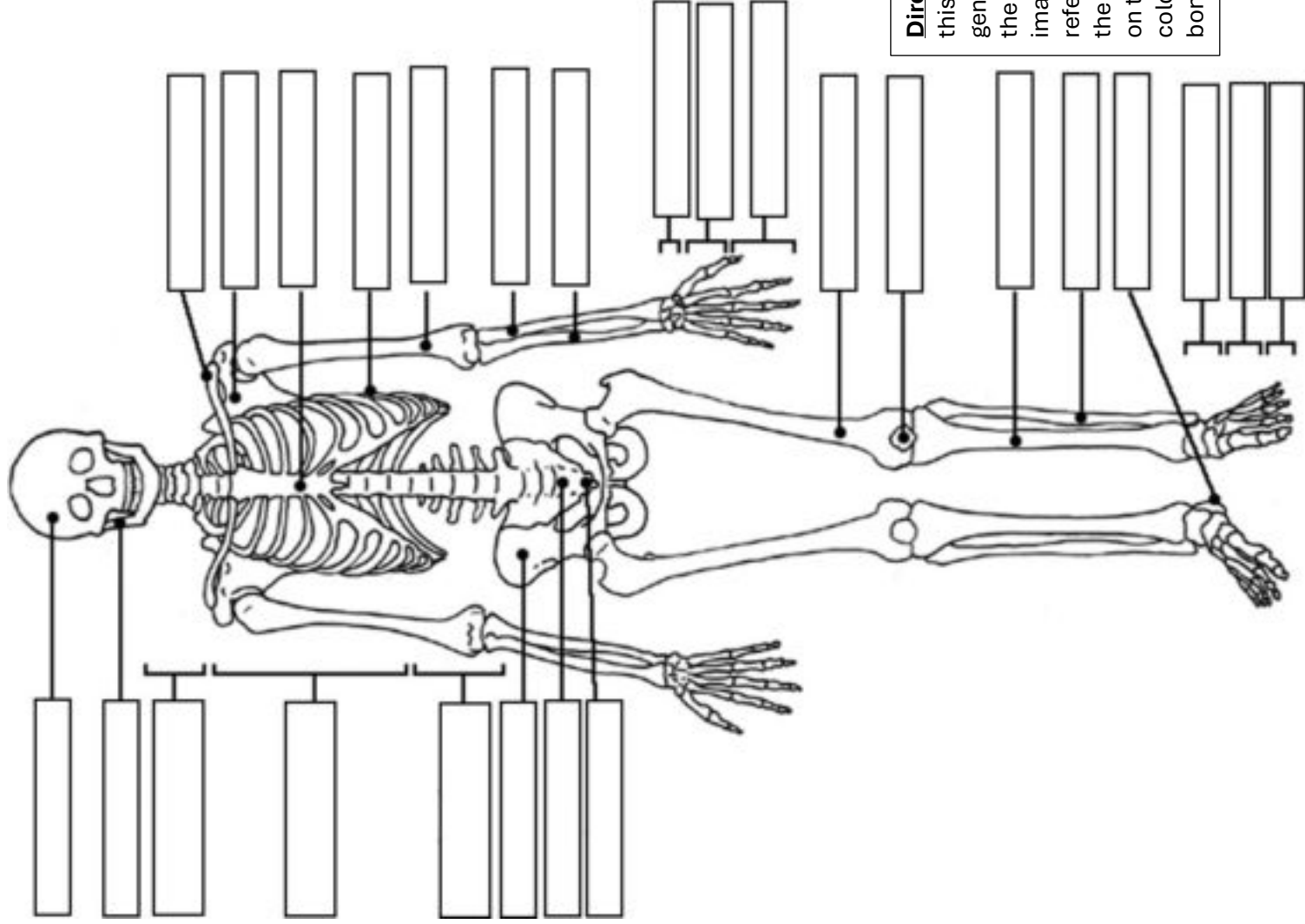
The **cranial cavity** is occupied by the brain and its coverings, cranial nerves, and blood vessels (page 68). The **vertebral cavity** houses the spinal cord, its coverings, related vessels, and nerve roots (page 77). Both cavities are lined by the **dura mater**, a tough, fibrous membrane. The dura mater of the vertebral cavity is continuous with the cranial dura at the foramen magnum.

The **thoracic cavity** contains the lungs, heart, and neighboring structures in the chest. Its skeletal walls are the thoracic vertebrae and ribs posteriorly, the ribs anterolaterally, and the sternum and costal cartilages anteriorly (page 28). The roof of the cavity is membranous; the floor is the muscular thoracic diaphragm (page 48). The middle of the thoracic cavity, called the *mediastinum* (page 103), is a partition packed with structures (e.g., heart). It separates the thoracic cavity into discrete left and right parts that are lined with **pleura** and contain the lungs.

The **abdominopelvic cavity**, containing the gastrointestinal tract and related glands, the urinary tract, and great numbers of vessels and nerves, has muscular walls anterolaterally (page 49), the lower ribs and muscle laterally, and the lumbar and sacral vertebrae and muscles posteriorly (page 48). The roof of the abdominal cavity is the thoracic diaphragm. The abdominal and pelvic cavities are continuous with one another. The pelvic cavity, containing the urinary bladder, rectum, reproductive organs, and lower gastrointestinal tract, has muscular walls anteriorly, bony walls laterally, and the sacrum posteriorly. The internal surface of the abdominal wall is lined by a serous membrane, the **peritoneum**, that is continuous with the outer membrane of the abdominal viscera (page 138). The serous secretions enable the mobile abdominal viscera to slip and slide frictionlessly during movement.

OPEN VISCERAL CAVITIES

Open visceral cavities are largely tubular passageways (tracts) of visceral organs that open to the outside of the body (page 14), and include the **respiratory tract**, open at the nose and mouth, the **digestive tract** that opens at both the mouth and the anus, and the **urinary tract** that opens in the perineum at the urethral orifices. These cavities are lined with a mucus-secreting layer (**mucosa**) that is the working tissue of open cavities (providing secretion, absorption, and protection). The mucosa is lined with epithelial cells, and supported by a vascular connective tissue layer and a smooth muscle layer. The male genital tract (not shown) opens into the lower urinary tract. The female genital tract (not shown) opens into the perineum by way of the vagina. Both tracts are lined with mucosae. See pages 157 and 158.



Directions: The purpose of this exercise is for you to learn general names of the bones of the human body. Use the image at the right as a reference. Transfer names to the image at the left. Meditate on the terminology as you color each bone or set of bones. Please work neatly!

Directions: The purpose of this exercise is for you to learn proper anatomical terms for different parts of the body. Use the image on the last page for reference

