General Body and Directional Terms

Course
Anatomy & Physiology

Unit I
Orientation to the Human Body

Essential Question
What common terminology is used to describe human anatomy?

TEKS
130.206 (c)
2A
6A, 6B
10A

Prior Student Learning
None

Estimated time
2-4 hours

Rationale
Healthcare professionals must have a comprehensive medical vocabulary in order to communicate effectively with other health professionals.

Objectives
Upon completion of this lesson, the learner should be able to:

- Define and decipher common terms associated with the structural organization of the body
- Identify the body cavities and distinguish the organs contained within those cavities
- List and define the terms related to positions, directions and planes of the body

Engage
Place several markings on a student volunteer's body. Have three other students write down how they would describe where the marks are located on the student volunteer. Then have each of the three students read aloud what they have written. Explain that by using medical terms to describe the locations of the marks, we can be more exact and this will help whomever is reading the report understand the true location of injuries, anomalies or incisions.

Key Points

I. Branches of Science that study the human body
   a. Anatomy
      1. Means “cutting apart” (dissection)
      2. Study of the body and the relationships of its parts to each other
      3. Dissection is used to study the structure of the human body
   b. Biology - Study of all forms of life and living things
   c. Embryology
      1. Study of the origin and development of an organism
      2. Covers from 2nd to the 8th week after conception, the embryonic state
      3. After eight weeks, the developing organism is known as a fetus.
   d. Histology
      1. Study of the body microscopically
      2. Studies the minute structures and their composition, plus the functions of normal cells, tissue and organs.
   e. Pathology
      1. Study of the changes in the human body which are caused
by disease
2. Study changes due to disease that alter the function of the body
f. Physiology - Studies the normal activity and functions of the body

II. Body in General
a. Cells are the basic unit of life
b. Cells that perform similar functions join together, or group together, to form tissue.
c. Groups of different types of tissue join together to form an organ
d. Groups of organs work together to perform a complex function, for a body system
e. Trillions of cells that vary in size and shape according to their purpose or function
f. Specialized cells are responsible for the functions of growth, secretions, excretions, nutrition, and reproduction
g. Mechanical, chemical and nervous stimulation activate the cells

III. Cells
a. Epithelial cells
   1. Skin cells
   2. May be square and flat
b. Fat cells - contain large vacant spaces for fat storage
c. Muscle cells - long and slender
d. Nerve cells - may be long and have fingerlike extensions, which carry impulses

IV. Tissues
a. Connective tissue
   1. Supports and encases body structures.
   2. Most widespread kind of tissue throughout the body
   3. Holds organs in place and connects body parts to each other
   4. Main types of connective tissue:
      (a) Bone that supports the body
      (b) Cartilage which is firm but bendable
      (c) Dense fibrous: makes up the tendons and ligaments
      (d) Loose that connects adjoining structures
      (e) Adipose that pads and protects, stores fat, and insulates the body against heat loss
b. Epithelial tissue
   1. Found in the skin and in the lining of blood vessels
   2. Makes up the outer covering of external and internal body surfaces and the lining of the digestive, respiratory, and
urinary tracts

c. Muscle tissue
   1. Provides movement
   2. The main function is to contract

d. Nerve tissue
   1. Conducts impulses to and from the brain
   2. Is composed of nerve cells called neurons
   3. Needs more oxygen and nutrients than any other body tissue

V. Organs
   a. When two or more kinds of tissue work together to perform a specific function, you have an organ
   b. Although organs act as units, they do not function alone
   c. Several organs join together to form a system and perform a body function
   d. Each system has a special function

VI. Systems
   a. Cardiovascular system
      1. Includes the heart and blood vessels
      2. Carries the blood throughout the body
   b. Digestive or gastrointestinal system
      1. Includes the mouth, esophagus, stomach, and the small and large intestines
      2. Digests and absorbs food and excretes waste
   c. Endocrine system
      1. Made up of a variety of glands
      2. Manufactures and distributes hormones
   d. Integumentary system
      1. Includes the hair, skin, nails, sweat glands and oil glands
      2. Helps protect the body
   e. Lymphatic system
      1. Works with the cardiovascular system
      2. Helps protect the body against disease-causing organisms
   f. Musculoskeletal system
      1. Composed of bones, muscles, tendons and ligaments
      2. Provides the framework for the body
      3. Supports organs
      4. Permits movement in the body
   g. Reproductive system
      1. Includes the uterus, ovaries, testes, and prostate
      2. Provides for reproduction
   h. Respiratory system
      1. Includes the trachea, lungs, and bronchi
      2. Provides for the exchange of gases
      3. Absorbs oxygen
4. Expels carbon dioxide
   i. Sensory or special senses system
      1. Made up of the eyes, ears, nose, mouth, skin and nerves
      2. Acts as the body's external perception/alarm system by
         letting in light, sound, taste and touch (both pleasure and
         pain)
   j. Nervous System
      1. Brain, spinal cord and nerves
      2. Allows the body to act and respond
   k. Urinary system
      1. Manufactures and excretes urine
      2. Includes the kidneys, ureters, urinary bladder, and urethra

VII. Cavities of the Body
   a. Abdominal cavity
      1. Contains the stomach, intestines, liver, spleen, gallbladder,
         pancreas, ureters, and kidneys
      2. Ventral body cavity (located on the front of the body)
   b. Cranial cavity
      1. The cavity inside the skull, or the cranium
      2. Space within the skull containing the brain
      3. Cranial means “pertaining to the skull”.
      4. Dorsal body cavities (located on the back part of the body)
   c. Pelvic cavity
      1. Contains the urinary bladder, urethra, uterus and vagina in
         the female, part of the large intestine and the rectum
      2. Ventral body cavity (located on the front of the body)
      3. Space below the abdomen
   d. Spinal cavity
      1. Consist of the spinal column connecting to the cranial
         cavity
      2. Space within the spinal column (backbone) containing the
         spinal cord
      3. Dorsal body cavities (located on the back part of the body)
   e. Thoracic or chest cavity
      1. Contains the esophagus, trachea, lungs, heart and aorta
      2. Can be divided into two smaller areas
         (a) The pleural cavity surrounds the lungs
         (b) The mediastinum is the area between the lungs,
            containing the heart, aorta, trachea, esophagus and
            thymus gland
      3. Ventral body cavity (located on the front of the body)
   f. Pleural cavity
      1. Space around each lung

VIII. Roots of Structures
### IX. Structural Suffixes

<table>
<thead>
<tr>
<th>Suffix</th>
<th>What it Means</th>
<th>Example term</th>
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<td>-cyte</td>
<td>Cell</td>
<td>Erythrocyte</td>
<td>Red blood cell</td>
</tr>
<tr>
<td>-gen</td>
<td>Agent that causes</td>
<td>Carcinogen</td>
<td>Agent causing cancer</td>
</tr>
<tr>
<td>-genic</td>
<td>Producing</td>
<td>Carcinogenic</td>
<td>Has cancer-causing properties</td>
</tr>
<tr>
<td>-oma</td>
<td>Tumor or swelling</td>
<td>Myoma</td>
<td>Tumor in the muscle</td>
</tr>
<tr>
<td>-osis</td>
<td>Abnormal condition</td>
<td>Cytosis</td>
<td>Abnormal condition of cells</td>
</tr>
<tr>
<td>-pathy</td>
<td>Disease</td>
<td>Neuropathy</td>
<td>A disease of the nerves</td>
</tr>
<tr>
<td>-plasm</td>
<td>Growth or formation</td>
<td>Neoplasm</td>
<td>A new growth</td>
</tr>
<tr>
<td>-sarcoma</td>
<td>Malignant tumor</td>
<td>Myosarcoma</td>
<td>Malignant muscle tumor</td>
</tr>
</tbody>
</table>

### X. Directional Terms

a. Used to pinpoint or specifically locate an area on the body.

b. Anatomical position is the body standing, arms at each side, with palms facing forward and the feet side by side

c. Anatomical plane
   1. An imaginary flat plate or field
   2. Provide further division of the body, to identify a specific location or area

d. Frontal or coronal plane
   1. A vertical plane dividing the body into anterior and posterior
portions
2. Anterior means front
3. Posterior refers to the back
e. Mid-sagittal plane
1. A horizontal plane
2. Divides the body into right and left halves at the body’s midpoint
f. Sagittal plane
1. A vertical plane
2. Passes from front to back
3. Divides the body into right and left sides
g. Transverse plane
1. A horizontal (cross-section) plane, parallel to the ground and through the waistline
2. Divides the body into upper and lower halves
h. Ventral
1. Anterior
2. Refers to the front of the body
i. Dorsal
1. Posterior
2. Refers to the back of the body
j. Cephalad
1. Above the waistline
2. “head” or “upward”
3. Superior – “above”
k. Caudal
1. Below the waistline
2. Inferior, below
l. Superior and inferior
1. Also used to describe body parts in relation to one another in general
m. Lateral - sides of the body
n. Medial – refers to the middle
o. Distal – away from the point of origin
1. The foot would be the distal portion of the leg
p. Proximal – refers to ‘nearest the point of origin”, close proximity
1. The upper thigh would e the proximal portion of the leg
q. Ipsilateral
1. Pertains to one side
r. Mediolateral
1. Pertaining to the middle and one side

XI. Root words that pertain to directional terms
### Root word | What it means
---|---
Anter/o | Front
Caud/o | Tail or downward
Cephal/o | Head or upward
Dist/o | Away from (distant) the point of origin
Dors/o | Back
Infer/o | Below
Later/o | Side
Medi/o | Middle
Poster/o | Back or behind
Proxim/o | Near to (proximity) the point of origin
Super/o | Above
Ventr/o | Front or belly

#### XII. Regions of the body
- a. Anatomical divisions of the abdomen
- b. Used to describe the regions in which organs and structures are found
- c. Used to diagnose abdominal problems with greater accuracy
  1. Hypochondriac region
     (a) Upper lateral regions beneath the ribs
  2. Epigastric region
     (a) Region of the stomach
  3. Lumbar region
     (a) Two middle lateral regions
  4. Umbilical region
     (a) Region of the navel or umbilicus
  5. Inguinal (iliac) region
     (a) Lower lateral regions
  6. Hypogastric region
     (a) Lower middle region, below the umbilicus

#### XIII. Quadrants
- a. Right upper quadrant
  1. **RUQ**
  2. Contains the right lobe of the liver, gallbladder, and parts of the small and large intestines.
- b. Left upper quadrant
  1. **LUQ**
  2. Contains the left lobe of the liver, stomach, pancreas, spleen, and parts of the small and large intestines
- c. Right lower quadrant
  1. **RLQ**
  2. Contains parts of the small and large intestines, appendix, right ureters, right ovary, and fallopian tube.
- d. Left lower quadrant
1. **LLQ**
2. Contains parts of the small and large intestines, left ureters, left ovary, and fallopian tube

### XIV. Divisions of the back

<table>
<thead>
<tr>
<th>Division</th>
<th>Abbreviation</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>Cervical</td>
<td>C</td>
<td>Neck region. There are 7 cervical vertebrae (C1-C7).</td>
</tr>
<tr>
<td>Thoracic</td>
<td>T or D (D = dorsal)</td>
<td>Chest region. There are 12 thoracic vertebrae (T1-T12). Each bone is joined to a rib</td>
</tr>
<tr>
<td>Lumbar</td>
<td>L</td>
<td>Loin or flank region (between the ribs and the hip bone). There are 5 lumbar vertebrae (L1-L5).</td>
</tr>
<tr>
<td>Sacral</td>
<td>D</td>
<td>Five bones (S1-S5) are fused to form one bone, the sacrum.</td>
</tr>
<tr>
<td>Coccygeal</td>
<td>(none)</td>
<td>The coccyx (tailbone) is a small bone composed of 4 fused pieces.</td>
</tr>
</tbody>
</table>

### XV. Other body regions

<table>
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<tr>
<td>Auricular region</td>
<td>Around the ears</td>
</tr>
<tr>
<td>Axillary</td>
<td>Axillae (armpits)</td>
</tr>
<tr>
<td>Buccal</td>
<td>Cheeks of the face</td>
</tr>
<tr>
<td>Clavicular</td>
<td>On each side of the sternum (breastbone)</td>
</tr>
<tr>
<td>Infraorbital</td>
<td>Below the eyes</td>
</tr>
<tr>
<td>Infrascapular</td>
<td>On each side of the chest down to the last rib</td>
</tr>
<tr>
<td>Lumbar</td>
<td>Below the infrascapular area</td>
</tr>
<tr>
<td>Mammary</td>
<td>Breast area</td>
</tr>
<tr>
<td>Mental</td>
<td>Region of the chin</td>
</tr>
<tr>
<td>Orbital</td>
<td>Around the eyes</td>
</tr>
<tr>
<td>Pubic</td>
<td>Above the hypogastric region (above the pubis)</td>
</tr>
<tr>
<td>Sacral</td>
<td>Area over the sacrum</td>
</tr>
<tr>
<td>Sternal</td>
<td>Over the sternum</td>
</tr>
<tr>
<td>Submental</td>
<td>Below the chin</td>
</tr>
<tr>
<td>Supraclavicular</td>
<td>Above the clavicles</td>
</tr>
</tbody>
</table>

### XVI. Positions

a. Erect – a standing position
b. Lateral recumbent – lying on left side with right thigh and knee drawn up to chest
c. Prone – lying face down
d. Supine – lying flat on your back
e. Sims’ position
   1. Semi-prone side position
   2. Lying on the left side with the right thigh and knee sharply flexed; left leg straight
   3. The lower arm (left) is behind the person
   4. Pillow is under the person’s head and shoulder
   5. Usually not comfortable for older persons
f. Fowler’s position
   1. Semi-sitting
   2. The head of the bed is raised between 45 and 60 degrees
   3. Spine is straight
   4. Head is supported with a small pillow

Activity
I. In pairs, create a stick-like figure, with a head, trunk, arms, and legs using play dough. As the terms are discussed, the student will use a toothpick to designate the area. After all the terms are discussed, cut the figure into the planes.
II. In pairs, identify the following areas on partner:
   Area distal to the knee.
   Area proximal to the elbow.
   Lateral to the big toe.
   Anterior side of the body.
   Posterior side of the body.
   Area that is medial to the shoulder.
   Area that is superior to the lungs.
   Area that is inferior to the heart.
III. Complete Body and Directional Terms Worksheet.
IV. Complete Color the Cavities and Color the Abdominal Regions activity.
V. Complete the Body Planes and Directions activity.
VI. Develop a Short Story describing best date or worst nightmare using anatomical terms.
VII. Show students copies of CT-scans and quiz them on which body plane is being used.

Assessment
Successful completion of the activities
Writing Rubric
Body Orientation Quiz and Key

Materials
Assorted colors of clay
Crayons
Colored toothpicks
Paper plates
Rulers
Bananas
Permanent markers
Data projector
Computer


Accommodations for Learning Differences
For reinforcement, the student will practice terms using flash cards.

For enrichment, the student will choose 20 general body and directional terms and create a crossword puzzle

National and State Education Standards
National Healthcare Foundation Standards and Accountability Criteria:
Foundation Standard 2: Communications
2.21 Use roots, prefixes, and suffixes to communicate information
2.22 Use medical abbreviations to communicate information

TEKS
130.206 (c)(2)(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section;
130.206 (c)(6)(A) investigate and describe the integration of the chemical and physical processes, including equilibrium, temperature, pH balance, chemical reactions, passive transport, active transport, and biofeedback, that contribute to homeostasis;
130.206 (c)(6)(B) determine the consequences of the failure to maintain homeostasis; and
130.206(c)(10)(A) analyze the relationships between the anatomical structures and physiological functions of systems, including the integumentary, nervous, skeletal, musculoskeletal, cardiovascular, respiratory, gastrointestinal, endocrine, and reproductive.

Texas College and Career Readiness Standards
English and Language Arts
Understand new vocabulary and concepts and use them accurately in reading, speaking, and writing
1. Identify new words and concepts acquired through study of their relationships to other words and concepts
2. Apply knowledge of roots and suffixes to infer the meanings of new words
3. Use reference guides to confirm the meanings of new words or concepts

Cross-Disciplinary Standards
I. Key Cognitive Skills
   D. Academic Behavior:
      1. Self-monitor learning needs and seek assistance when needed;
      3. Strive for accuracy and precision;
      4. Persevere to complete and master task
   E. Work habits:
      1. Work independently
      2. Work collaboratively
II. Foundation Skills
   A.
      2. Use a variety of strategies to understand the meaning of new words
      4. Identify the key information and supporting details
### Body and Directional Terms

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<td>Cyt/o</td>
<td>Cytology</td>
<td>Epithelioma</td>
<td></td>
</tr>
<tr>
<td>Epithei/o</td>
<td>Epithelioma</td>
<td>Fibrosis</td>
<td></td>
</tr>
<tr>
<td>Hist/o</td>
<td>Histologist</td>
<td>Liposuction</td>
<td></td>
</tr>
<tr>
<td>Lip/o</td>
<td>Liposuction</td>
<td>Myositis</td>
<td></td>
</tr>
<tr>
<td>Neur/o</td>
<td>Neuropathy</td>
<td>Organomegaly</td>
<td></td>
</tr>
<tr>
<td>Organ/o</td>
<td>Organomegaly</td>
<td>Viscera</td>
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<td>-oma</td>
<td>Myoma</td>
<td>Cytosis</td>
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<td>Neoplasia</td>
<td>Neuropathy</td>
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<td>-plasm</td>
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<td>Myosarcoma</td>
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Medical Terminology

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<tr>
<td>afferent</td>
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<tr>
<td>anterior</td>
<td></td>
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<tr>
<td>posterior</td>
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<td>central</td>
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<td>deep</td>
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<td>superficial</td>
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<td>distal</td>
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<td>lateral</td>
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<td>medial</td>
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<td>supine</td>
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<tr>
<td>prone</td>
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<tr>
<td>Frontal plane</td>
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<tr>
<td>Sagittal plane</td>
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### KEY - Medical Terminology

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<td>Fibrous</td>
<td>Fibrosis</td>
<td>Condition of the fibrous tissue</td>
</tr>
<tr>
<td>Hist/o</td>
<td>Tissue</td>
<td>Histologist</td>
<td>Physician who studies tissue</td>
</tr>
<tr>
<td>Lip/o</td>
<td>Fat</td>
<td>Liposuction</td>
<td>Removal of fat cells by suction</td>
</tr>
<tr>
<td>Myo</td>
<td>Muscle</td>
<td>Myositis</td>
<td>Enlargement of an organ</td>
</tr>
<tr>
<td>Neur/o</td>
<td>Nerve</td>
<td>Neuropathy</td>
<td>Condition of the nerve</td>
</tr>
<tr>
<td>Organ/o</td>
<td>Organ</td>
<td>Organomegaly</td>
<td>Enlargement of an organ</td>
</tr>
<tr>
<td>Viscer/o</td>
<td>Internal organs</td>
<td>Viscera</td>
<td>Internal organs</td>
</tr>
</tbody>
</table>

#### Root word

<table>
<thead>
<tr>
<th>Root word</th>
<th>What it means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anter/o</td>
<td>Front</td>
</tr>
<tr>
<td>Caud/o</td>
<td>Tail or downward</td>
</tr>
<tr>
<td>Cephal/o</td>
<td>Head or upward</td>
</tr>
<tr>
<td>Dist/o</td>
<td>Away from (distant) the point of origin</td>
</tr>
<tr>
<td>Dors/o</td>
<td>Back</td>
</tr>
<tr>
<td>Infer/o</td>
<td>Below</td>
</tr>
<tr>
<td>Later/o</td>
<td>Side</td>
</tr>
<tr>
<td>Medi/o</td>
<td>Middle</td>
</tr>
<tr>
<td>Poster/o</td>
<td>Back or behind</td>
</tr>
<tr>
<td>Proxim/o</td>
<td>Near to (proximity) the point of origin</td>
</tr>
<tr>
<td>Super/o</td>
<td>Above</td>
</tr>
<tr>
<td>Ventr/o</td>
<td>Front or belly</td>
</tr>
</tbody>
</table>

#### Suffix

<table>
<thead>
<tr>
<th>Suffix</th>
<th>What it Means</th>
<th>Example term</th>
<th>What it Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>-cyte</td>
<td>Cell</td>
<td>Erythrocyte</td>
<td>Red blood cell</td>
</tr>
<tr>
<td>-gen</td>
<td>Agent that causes</td>
<td>Carcinogen</td>
<td>Agent causing cancer</td>
</tr>
<tr>
<td>-genic</td>
<td>Producing</td>
<td>Carcinogenic</td>
<td>Has cancer-causing properties</td>
</tr>
<tr>
<td>-oma</td>
<td>Tumor or swelling</td>
<td>Myoma</td>
<td>Tumor in the muscle</td>
</tr>
<tr>
<td>-osis</td>
<td>Abnormal condition</td>
<td>Cytosis</td>
<td>Abnormal condition of cells</td>
</tr>
<tr>
<td>-pathy</td>
<td>Disease</td>
<td>Neuropathy</td>
<td>A disease of the nerves</td>
</tr>
<tr>
<td>-plasm</td>
<td>Growth or formation</td>
<td>Neoplasm</td>
<td>A new growth</td>
</tr>
<tr>
<td>-sarcoma</td>
<td>Malignant tumor</td>
<td>Myosarcoma</td>
<td>Malignant muscle tumor</td>
</tr>
<tr>
<td>Division</td>
<td>Abbreviation</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Cervical</td>
<td>C</td>
<td>Neck region. There are 7 cervical vertebrae (C1-C7).</td>
<td></td>
</tr>
<tr>
<td>Thoracic</td>
<td>T or D</td>
<td>Chest region. There are 12 thoracic vertebrae (T1-T12. Each bone is joined to a rib</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(D = dorsal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lumbar</td>
<td>L</td>
<td>Loin or flank region (between the ribs and the hip bone). There are 5 lumbar vertebrae (L1-L5).</td>
<td></td>
</tr>
<tr>
<td>Sacral</td>
<td>D</td>
<td>Five bones (S1-S5) are fused to form one bone, the sacrum.</td>
<td></td>
</tr>
<tr>
<td>Coccyeal</td>
<td>(none)</td>
<td>The coccyx (tailbone) is a small bone composed of 4 fused pieces.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Where it is</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auricular</td>
<td>Around the ears</td>
</tr>
<tr>
<td>Axillary</td>
<td>Axillae (armpits)</td>
</tr>
<tr>
<td>Buccal</td>
<td>Cheeks of the face</td>
</tr>
<tr>
<td>Clavicular</td>
<td>On each side of the sternum (breastbone)</td>
</tr>
<tr>
<td>Infraorbital</td>
<td>Below the eyes</td>
</tr>
<tr>
<td>Infrascapular</td>
<td>On each side of the chest down to the last rib</td>
</tr>
<tr>
<td>Lumbar</td>
<td>Below the infrascapular area</td>
</tr>
<tr>
<td>Mammary</td>
<td>Breast area</td>
</tr>
<tr>
<td>Mental</td>
<td>Region of the chin</td>
</tr>
<tr>
<td>Orbital</td>
<td>Around the eyes</td>
</tr>
<tr>
<td>Pubic</td>
<td>Above the hypogastric region (above the pubis)</td>
</tr>
<tr>
<td>Sacral</td>
<td>Area over the sacrum</td>
</tr>
<tr>
<td>Sternal</td>
<td>Over the sternum</td>
</tr>
<tr>
<td>Submental</td>
<td>Below the chin</td>
</tr>
<tr>
<td>Supraclavicular</td>
<td>Above the clavicles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>afferent</td>
<td>Conducting toward a structure.</td>
</tr>
<tr>
<td>efferent</td>
<td>Conducting away from a structure.</td>
</tr>
<tr>
<td>anterior</td>
<td>Front of the body (ventral).</td>
</tr>
<tr>
<td>posterior</td>
<td>Back of the body (dorsal).</td>
</tr>
<tr>
<td>central</td>
<td>Pertaining to the center.</td>
</tr>
<tr>
<td>deep</td>
<td>Away from the surface.</td>
</tr>
<tr>
<td>superficial</td>
<td>Near the surface.</td>
</tr>
<tr>
<td>distal</td>
<td>Away from the beginning of a structure; away from the center.</td>
</tr>
<tr>
<td>proximal</td>
<td>Pertaining to the beginning of a structure</td>
</tr>
<tr>
<td>inferior</td>
<td>Away from the head; below another structure (caudal).</td>
</tr>
<tr>
<td>superior</td>
<td>Toward the head; above another structure (cephalic).</td>
</tr>
<tr>
<td>lateral</td>
<td>Pertaining to the side.</td>
</tr>
<tr>
<td>medial</td>
<td>Pertaining to the middle.</td>
</tr>
<tr>
<td>supine</td>
<td>Lying on the back</td>
</tr>
<tr>
<td>prone</td>
<td>Lying on the belly</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Plane</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frontal plane</td>
<td>Vertical plane dividing the body or structure into an anterior and posterior portion.</td>
</tr>
<tr>
<td>Sagittal plane</td>
<td>Vertical plane dividing the body or structure into right and left portions.</td>
</tr>
<tr>
<td>Transverse plane</td>
<td>Horizontal plane dividing the body or structure into upper and lower portions.</td>
</tr>
</tbody>
</table>
Color the Cavities

Using a diagram of the human body, label and color code each of the following.

Ventral Cavity  Mediaistantum
Thoracic Cavity  Pericardial Cavity
Pleural Cavities  Abdominopelvic Cavity
Pelvic Cavity  Abdominal Cavity
Color the Cavities

Using a diagram of the human body, label and color code each of the following.

Dorsal cavity
Cranial Cavity
Spinal (Vertebral) Cavity
Color the Abdominal Regions

A. Color the following drawing using the body regions:

1. Right iliac- purple
2. Epigastric- red
3. Left lumbar- blue
4. Right hypochondriac- yellow
5. Umbilical- orange
6. Left iliac- pink
7. Right lumbar-green
8. Hypogastric- brown
9. Left hypochondriac- leave blank

B. Using a black marker label the 4 abdominal quadrants.
Body Planes and Directions Activity

Planes and directions are practiced using fruit and toothpicks.

Be careful with the surgical instruments. Read and follow the instructions very carefully.

Materials:
Knives
Marker
Colored toothpicks
Bananas
Rulers

Banana:
Cut the banana with a transverse plane. Stick a blue toothpick in the superior end of the banana. Place red toothpick in the most distal point on the right inferior piece. Make a 3cm midsagittal incision on the posterior inferior portion of your banana. Place a yellow toothpick at the anterior superior medial section of the banana. With a maker place a (X) on the left posterior superior lateral section on your banana.
Short Story

Incorporate the following terms into a story describing your worst nightmare. Underline the term(s) in the story.

Superior
Inferior
Anterior
Abdominal Cavity
Dorsal
Pelvic Cavity
Medial
Oral Cavity
Lateral
Proximal
Distal
Superficial
Deep
Skeletal System
Cardiovascular System
Body Orientation Quiz

1. Describe how a body would be divided by each of the following types of planes:

A. Frontal (Coronal)
B. Midsagittal
C. Sagittal
D. Transverse

2. Identify the correct directional term to complete the following statements.

A. The liver is _________ to the diaphragm.
B. Fingers are located___________ to the wrist bones.
C. The skin on the dorsal surface of your body is said to be located on your____ surface.
D. The great (big) toe is ______ to the little toe.
E. The skin on your leg is _____ to the muscle tissue in your leg.
F. When you float face down in a pool, you are lying on your_____ surface.
G. The lungs and the heart are located _____ to the abdominal organs.

3. Identify which cavity each of the following organs are in:

A. Heart __________________  G. Lungs ________________
B. Liver __________________  H. Spleen __________________
C. Intestines__________________  I. Kidneys __________________
D. Spinal Cord ________________  J. Stomach ________________
E. Brain ____________________  K. Urinary Bladder ______________
F. Sex Organs ________________  L. Pancreas ________________

4. Fill in the blank completing the analogy.

A. anterior is to ventral as posterior is to _______________________
B. superficial is to external as deep is to _______________________
C. cranial is to caudal as superior is to _______________________
D. medial is to lateral as proximal is to _______________________

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5. Match the organs with the cavity they are in.

CAVITY                      ORGAN
1.____ cranial cavity       A. stomach
2.____ spinal cavity        B. reproductive organs
3.____ thoracic cavity      C. brain
4.____ abdominal cavity     D. small intestines
5.____ pelvic cavity        E. urinary bladder
                              F. spinal cord
                              G. liver, gallbladder, pancreas
                              and spleen
                              H. lung

6. Match the abdominal region with the descriptive term:

1. _____ Iliac/inguinal      A. above the stomach
2. _____ Epigastric          B. near the belly button
3. _____ Lumbar/lateral      C. below the stomach
4. _____ hypochondriac       D. below the ribs
5. _____ Umbilical           E. near the large bones of spinal cord
6. _____ hypogastric/ pelvic F. near the groin

("Medical anatomy and," 2005)
1. Describe how a body would be divided by each of the following types of planes:
A. Frontal (coronal) - divides body into anterior and posterior sections.
B. Midsagittal - divides body into equal right and left sides.
C. Sagittal - divides body into right and left sides.
D. Transverse - divides body into superior and inferior sections.

2. Identify the correct directional term to complete the following statements.
A. The liver is inferior to the diaphragm.
B. Fingers are located distal to the wrist bones.
C. The skin on the dorsal surface of your body is said to be located on your posterior surface.
D. The great(big) toe is medial to the little toe.
E. The skin on your leg is superficial to the muscle tissue in your leg.
F. When you float face down in a pool, you are lying on your anterior surface.
G. The lungs and the heart are located superior to the abdominal organs.

3. Identify which cavity each of the following organs are in:
A. Heart ventral mediastinal
B. Liver abdominal
C. Intestines abdominal
D. Spinal Cord vertebral
E. Brain cranial
F. Sex Organs pelvic
G. Lungs ventral pleural
H. Spleen abdominal
I. Kidneys abdominal
J. Stomach abdominal
K. Brain cranial
L. Urinary Bladder pelvic
M. Liver, gallbladder, pancreas and spleen
N. Lung

4. Fill in the blank completing the analogy.
A. anterior is to ventral as posterior is to dorsal
B. superficial is to external as deep is to internal
C. cranial is to caudal as superior is to inferior
D. medial is to lateral as proximal is to distal

5. Match the organs with the cavity they are in.
CAVITY
1. C cranial cavity
2. F spinal cavity
3. H thoracic cavity
4. A, D, G abdominal cavity
5. B, E pelvic cavity

ORGAN
A. stomach
B. reproductive organs
C. brain
D. small intestines
E. urinary bladder
F. spinal cord
G. liver, gallbladder, pancreas and spleen
H. lung
6. Match the abdominal region with the descriptive term:

1. **F** Iliac/inguinal  
   A. above the stomach  

2. **A** Epigastric  
   B. near the belly button  

3. **E** Lumbar/lateral  
   C. below the stomach  

4. **D** hypochondriac  
   D. below the ribs  

5. **B** Umbilical  
   E. near the large bones of spinal cord  

6. **C** hypogastric/ pelvic  
   F. near the groin  

("Medical Anatomy and," 2005)