

Exercise 1 – Introduction to A&P Lab

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- 1.1 Lab safety and rules **SKIP FOR ONLINE**
- 1.2 Information sources (Lab assignment) **SKIP FOR ONLINE**
- 1.3 Body cavities, organs Systems, and organs
- 1.4 Anatomy language and terms



Exercise 1.1 – Lab safety and rules**SKIP FOR ONLINE**

- LAB SAFETY AND RULES
 - CALL (480) 784-0911 for campus police and emergencies (or 911)
 - **NO FOOD and NO DRINK**
 - Be clean, LEAVE NO TRACE.
 - Closed **SHOES** are REQUIRED in laboratory (e.g., no sandals or flip flops)
 - AED is outside the LS building at the main entrance
- NO food or drink is allowed in Lab, on the Lab Tables or Lab Spaces.
 - Food or drink are not to be consumed in Lab at anytime
 - Food or drink should be stored in backpacks or purses out of sight
 - Food or drink can be consumed in the lobby outside of Lab
 - **Urine, Blood, and bodily fluids** are handled in the lab
- If you feel ill or are injured please alert your classmates and instructor
- Please be respectful of your classmates

- The students at your table can impact your success and performance depending on whether they are on task and actively engaged in learning. If a student at your table is distracting or impeding your success (1) move to a new lab table and (2) alert your instructor by email or after class.

- If you are pregnant or have reasons that exclude you from performing human or animal dissections or viewing please notify your instructor in writing via email and also in person after the first lab session.

- Respect the mobile phone, tablet, and computer use policy of your lab instructor. Many instructors will encourage you to use mobile and computer devices as part of classroom exercises to access anatomy and medical information on the web. However, personal use of devices should be limited to outside of class during breaks. Using mobile devices during a quiz or exam is considered academic dishonesty and may lead to dismissal from the course.

- Bring your **lab manual** and any reference sources (e.g., textbook, laptop) to lab

Exercise 1.1– Learning activity for lab safety and rules SKIP FOR ONLINE

- **Learning Objective 1.1: Students will identify the major lab safety instructions and rules and the rationale for each.**
 - Why is food and drink prohibited inside the lab?
 - If you need to eat or drink, what should you do?
 - If a student mentions she has been feeling sick all day and gets dizzy and then faints in class, what should you do?
 - If you have a bottle of water that you bought prior to lab, should you do before you arrive in lab?

 - What is an AED and where is one located?

 - What should you do if your lab tablemates seem distracted, comment about wanting to leave early and are not engaged in the lab activities?

 - Do you think sitting by better performing students will affect your grade? Do you think sitting by positive and engaged tablemates will affect your grade?

 - Why shouldn't pregnant students dissect animal or human specimens?

 - Your roommate is texting you about a ride home from school what should you do?

 - Write at least one question you have about the rules or other issues in lab?

Exercise 1.2 – Information sources**NAME:** SKIP FOR ONLINELab Assignment 1 (20 points)
THR

LAB (circle one): MON TUE WED

- **Learning Objective 1.2: Students will utilize the internet, textbook, classmates, and professor to define, describe, pronounce and identify information.**
- Introduce yourself to classmates at your lab table. Write the first names of the other three people sharing your lab table in the space provided here:
- Look up a word in the glossary of an A&P textbook or online source starting with the same letter as your first name. Write the word and the definition you found in the space here:
- Each of you must meet a different person in the lab, not seated at your table. Write their first name here and write an interesting fact about them:
- Look up the word “fibrin” in the back INDEX of the textbook (or search field of an online textbook). Now go find that page in the textbook with fibrin; identify the Chapter number _____ and Chapter title _____. What is fibrin and what does it do in the body?
- Ask your lab instructor a question... something that the textbook, your classmates, and the internet can't answer for you? Write the answer here:
- Use Google to look up the word “osteopenia.” Define it in the space below:
- Use an online dictionary or Google translate app to correctly pronounce the word “sphenoid.” Say it out loud and spell it phonetically(the way it sounds) here:
- List the major, specific program, career, or reason you are taking this course:
- List one disease or condition you would like to learn more about this semester?

Exercise 1.3 – Body cavities, organ systems and organs

- Identify the body cavities using your textbook and/or internet
 - Cranial and spinal cavities House the brain and spinal cord
 - Thoracic cavity Houses the lungs and the heart
 - Abdominal cavity (or abdominopelvic cavity) Houses the abdominal organs
 - Diaphragm (divides the thoracic and abdominal cavities)

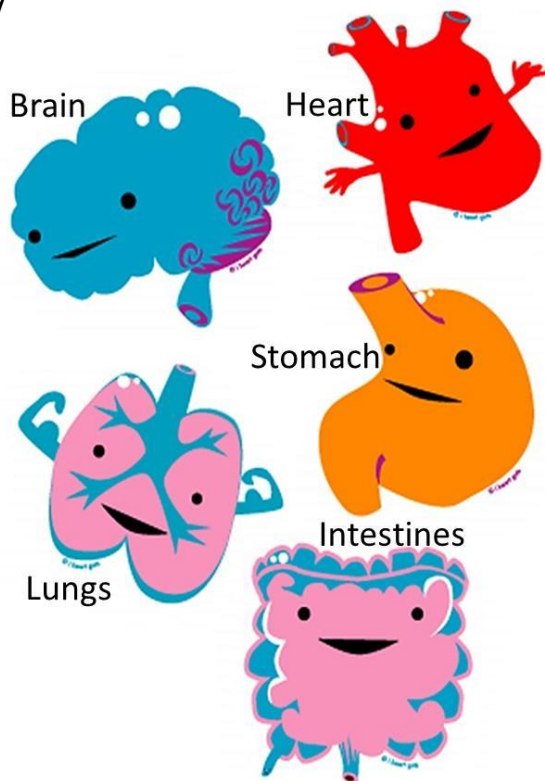
A muscle that goes directly across the body and separates the thoracic and abdominal cavities

- Identity and describe the protective covers/layers within the body cavities

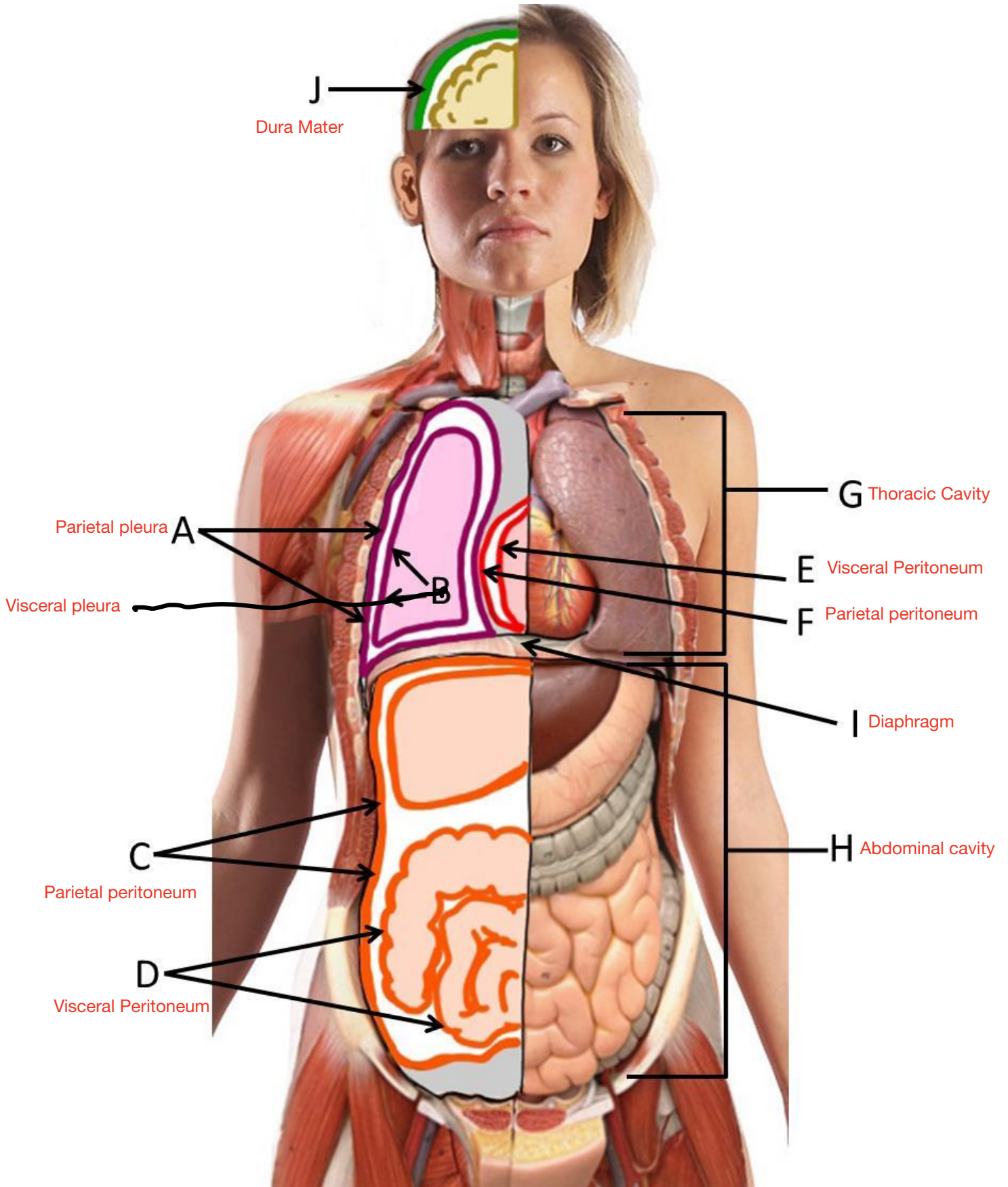
- Dura mater The periosteal layer and the Meningeal layer of the brain.
- Pleura (visceral vs. parietal pleura) The Pleura visceral is touching the lungs and the Pleura Parietal is covering the cavity.
- Pericardium (visceral vs. parietal pericardium) The Pericardium Visceral covers the heart; the parietal covers the cavity
- Peritoneum (visceral vs. parietal peritoneum) The Peritoneum covers the abdominal organs And the Parietal peritoneum covers the cavity

- Wrap each organ in the correct protective covering and then place it in the correct body cavity:

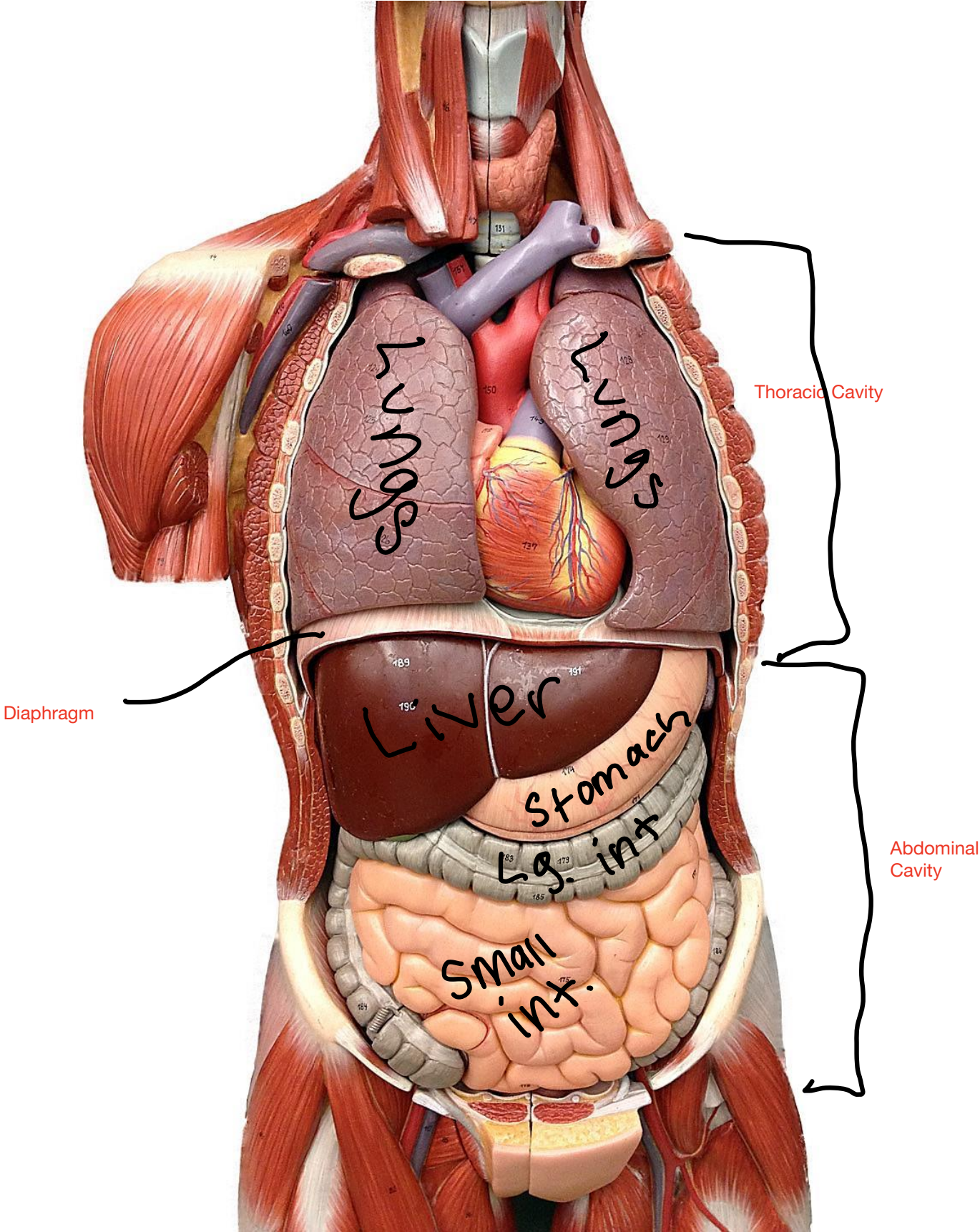
Organ -----> protective cover-----> body cavity



Label the the protective layers and body cavities:



Identify the cavities and organs on the torso model:



□ Review the organ systems of the human body by listing 2-3 organs for each and providing the organ system's primary function related to homeostasis. Examples are provided to get you started.

- **Respiratory** – lungs, trachea; oxygen and carbon dioxide exchange
- **Urinary or Renal** – Bladder, Kidney, Uterus
- **Cardiovascular** – Heart, blood vessels
- **Integumentary** – Skin, hair, nails
- **Nervous** – Brain and spinal cord
- **Skeletal** – Bones, ligaments, tendons
- **Musculoskeletal** – biceps, abs; movement of the body
- **Endocrine** – Pancreases, ovary, Thyroid
- **Digestive or Gastrointestinal** – Small / large intestine, mouth, stomach
- **Reproductive** – Prostate and Urethra
- **Lymphatic or Immune** – spleen, lymph nodes; protection, defense

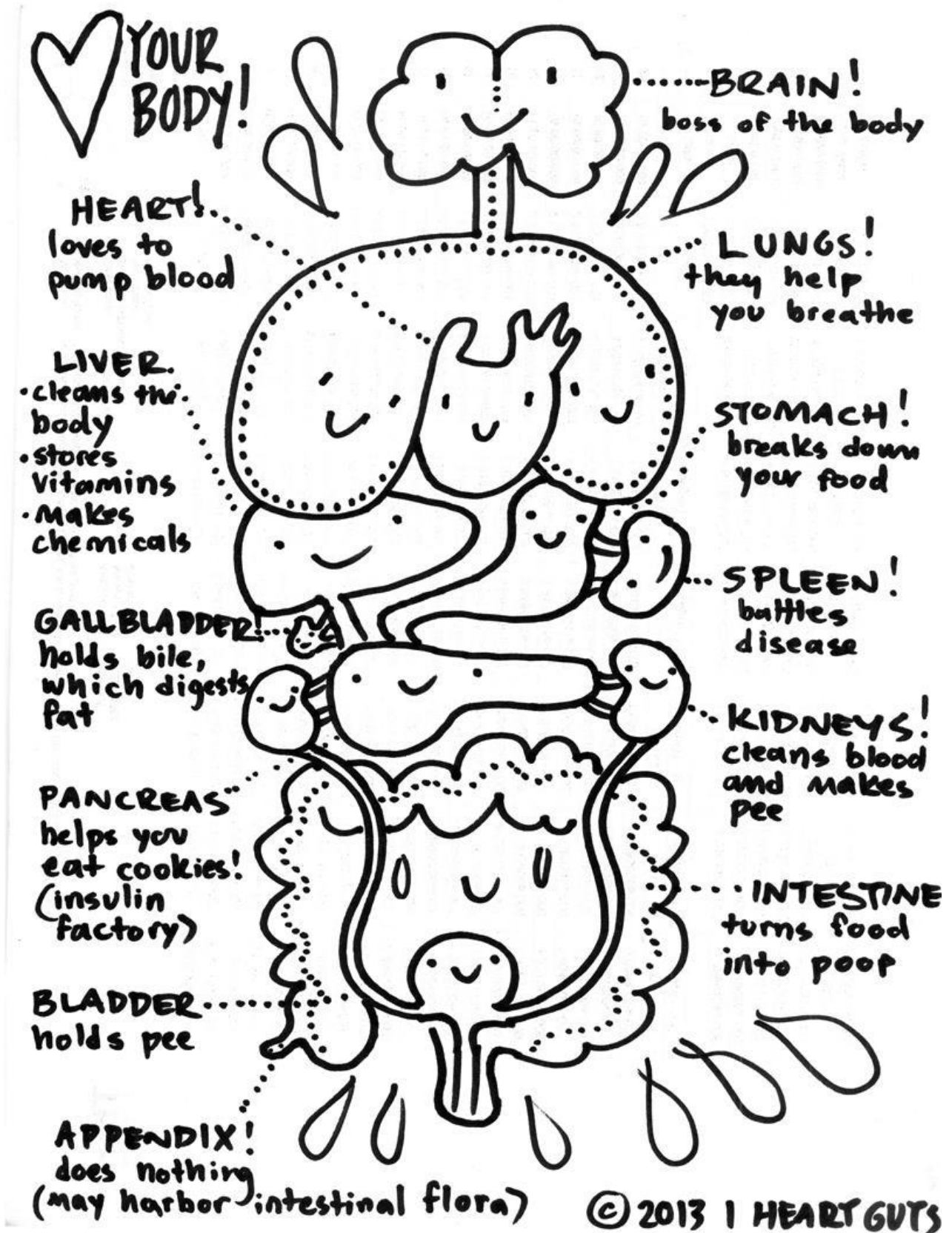
Exercise 1.3 – Learning activities for body cavities, organ systems and organs

- **Learning Objective 1.3: Students will identify the anatomy of the major body cavities, identify the function of the 11 major organs systems, and describe the basic location and function of the primary organs of the human body.**

- Name the major organs found in the thoracic cavity. **Lungs and heart**
- If a cardiothoracic surgeon must operate on the hearts surface then she must cut through the Pericardium which is a protective layer or bag surrounding the heart.
- Explain the function of the kidney to the person sitting beside you, assume they are 5th grade science student visiting MCC on during a field trip. Tell them were they'd expect to find their kidneys. **Filters our blood to help maintain proper chemical composition and fluid levels.**
- Your small intestines are wrapped with a protective layer called Peritoneum. If the inside of your abdominal cavity was a room then the walls, ceiling and floor would be covered with a protective layer called Parietal peritoneum (its kinda like living wall paper!).
- What adjectives do anatomists use to distinguish the two protective layers around an organ? The layer attached directly to an organ is called Visceral while the other that surrounds an organ like a “plastic bag” or is attached to the cavity wall is called Parietal.
- What is the tough protective layer that surrounds the brain and spinal cord? **Dura mater**
- What structure divides the thoracic and abdominal cavities?
Diaphragm
- The outer layer of each lung and the protective “bag” that surrounds the lungs are called the Pleura.
- Practice looking up and defining the following clinical terms:
 - Bacterial meningitis
Infection of the membrane that protects the spinal cord and can cause the membranes to swell and press on the spinal cord or brain.

- **Viral pericarditis** The swelling and irritation of the thin tissue surrounding the heart
- **Pleurisy** Inflammation of the pleurae, that impairs the lubricating function and causes
- **Pneumothorax** The presence of air or gas in the cavity between the lungs and the chest wall - can cause a collapsed lung.

Have some fun learning about your organs and Guts!
Go visit: iheartguts.com



Exercise 1.4 – Anatomy language and terms

- **Learning Objective 1.4: Students will define anatomy and medical terms based on common word structure, and students will define and identify major anatomical planes of section, directional terms, and regional terms.**

Anatomy language has some common themes and structure. Learning anatomy will often seem like taking a language course since anatomy is based mainly on **Latin** and **Greek**. Companion = com with, pan bread... somebody you would share bread with

- Define each of the following parts of a words and medical terms:
 - Prefixes
 - intra – Inside
 - inter – Occurring between
 - hyper – Above normal, high, excessive
 - hypo – Below, less than normal
 - Roots
 - osteo – The combining form meaning bones
 - hemo – The combining form meaning blood
 - cardio – The combining form meaning heart.
 - Suffixes
 - emia – The suffix meaning blood or presence of a substance in the blood.
 - itis – Meaning “inflamed”
 - ology – Meaning the science or study of.
 - cyte – Meaning cell
 - Medical words
 - Intravenous – Into or within a vein
 - Intercostal – Situated or extending between the ribs
 - Hypocalcemia – Having too little calcium in the blood.
 - Osteoarthritis – Inflammation of the bone and joints
 - Oncology – A branch of medicine that specializes in the diagnosis and treatment of cancer.
 - Hematologist – Specialist in blood disorders
 - Histology – The study of tissues and cells under a microscope

- Pleuritis – A condition where the Pleura becomes inflamed.
- Hyperglycemia – Higher than normal amount of glucose in the blood

Anatomical planes of section or “cuts.” Anatomists, morticians, and medical imaging technologists like to “cut” and slice the body and organs up in order to see things from different angles. Medical imaging “slices” the body using MRI, X-rays, etc.

□ Match each of the following planes of section or “cuts” with the descriptions:

- **Transverse** B
- **Sagittal** C
- **Frontal** D
- **Mid-sagittal** A
- **Coronal** E

A – divides the body into a right and left portion, cut directly at the midline making an equal right and left half of the head or body

B– divides the body into a top (superior) and bottom (inferior) portion

C – divides the body into a right and left portion

D – divides the body into a front and back portion

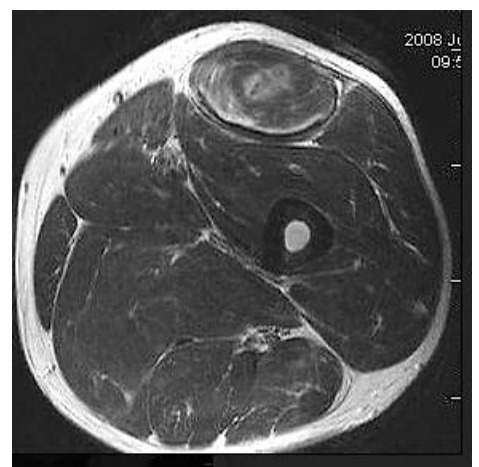
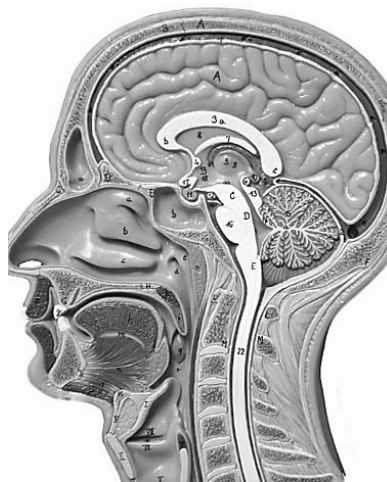
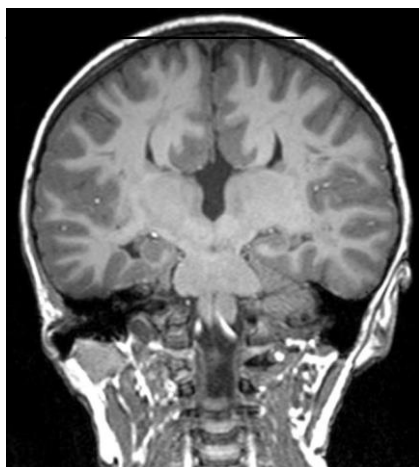
E – divides the body into front and back portions; term used more often when talking about the head such as a cut through the brain or skull

Identify the plane of section used to make each image:

Brain: CORONAL

Head: MID- SAGITTAL

Thigh: TRANSVERSE



Identify the plane of section used to make each image:

Chest / abdomen: FRONTAL

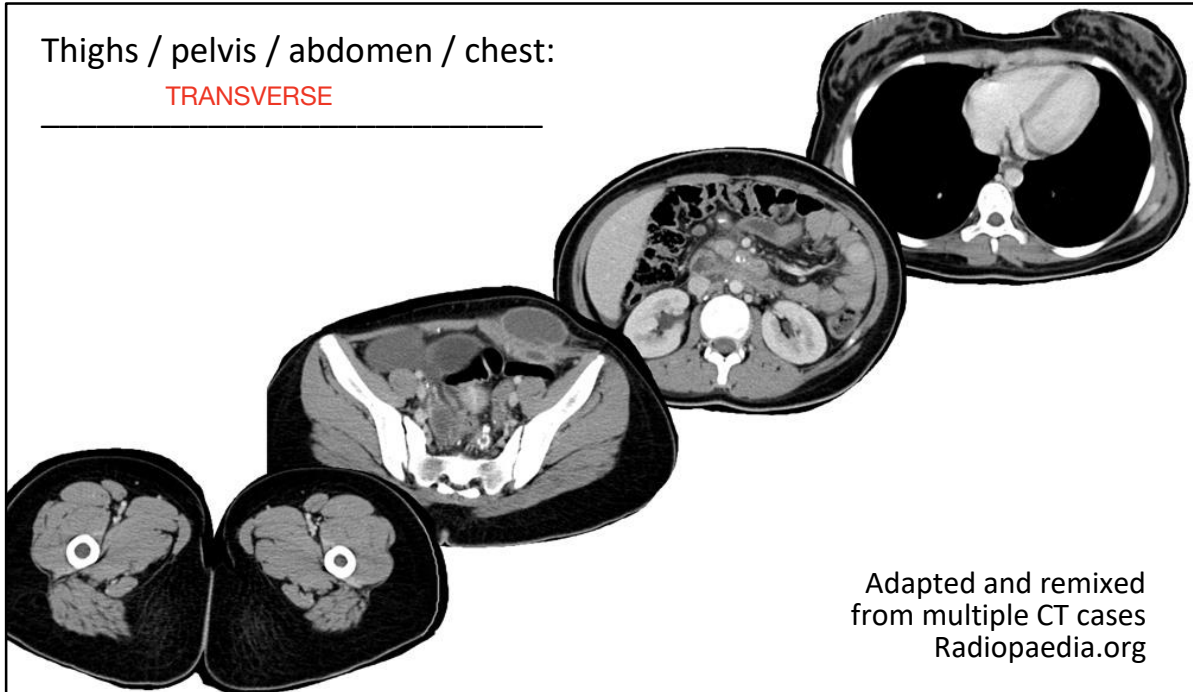


Chest / abdomen: SAGITTAL



Thighs / pelvis / abdomen / chest:

TRANSVERSE



Adapted and remixed
from multiple CT cases
Radiopaedia.org

Anatomical directional terms. Anatomists, doctors, nurses and health professionals use a specific set of words to identify direction and locations on structures of the body. The following is an essential list of those terms.

Look up each of the following terms in the textbook and online dictionary; write very simple one to two word definitions using everyday language

- Anterior (Ventral) – In front of
- Posterior (Dorsal) – Behind

- Superior – Above (toward the head)
- Inferior – Below (away from the head)

- Medial – Middle of body
- Lateral – Outer side of body

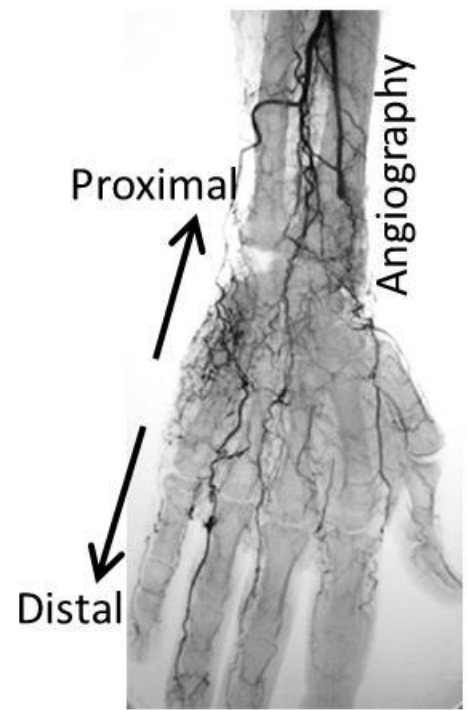
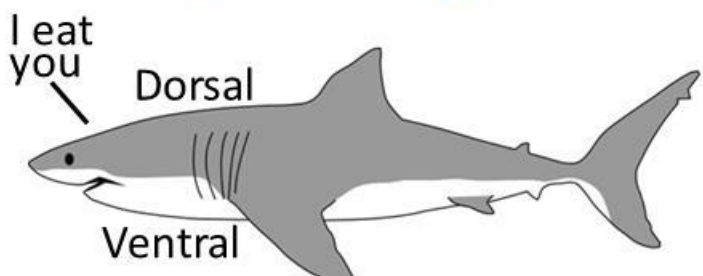
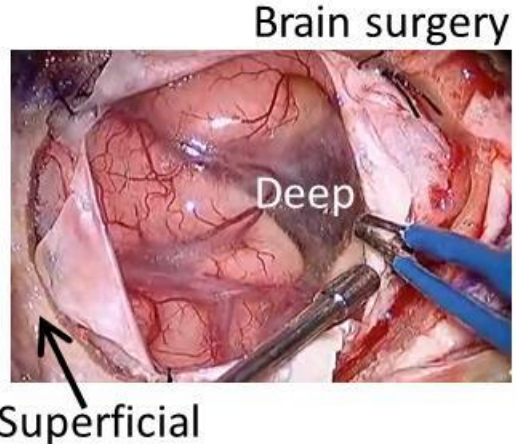
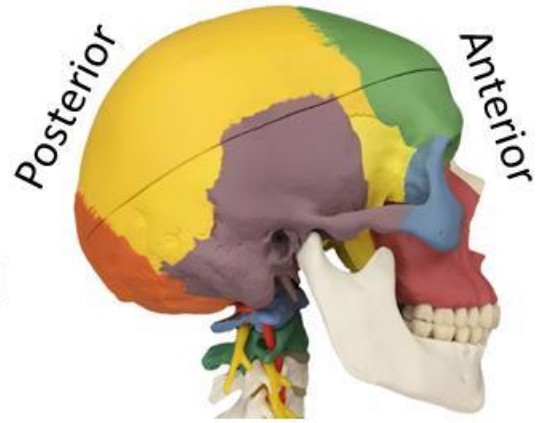
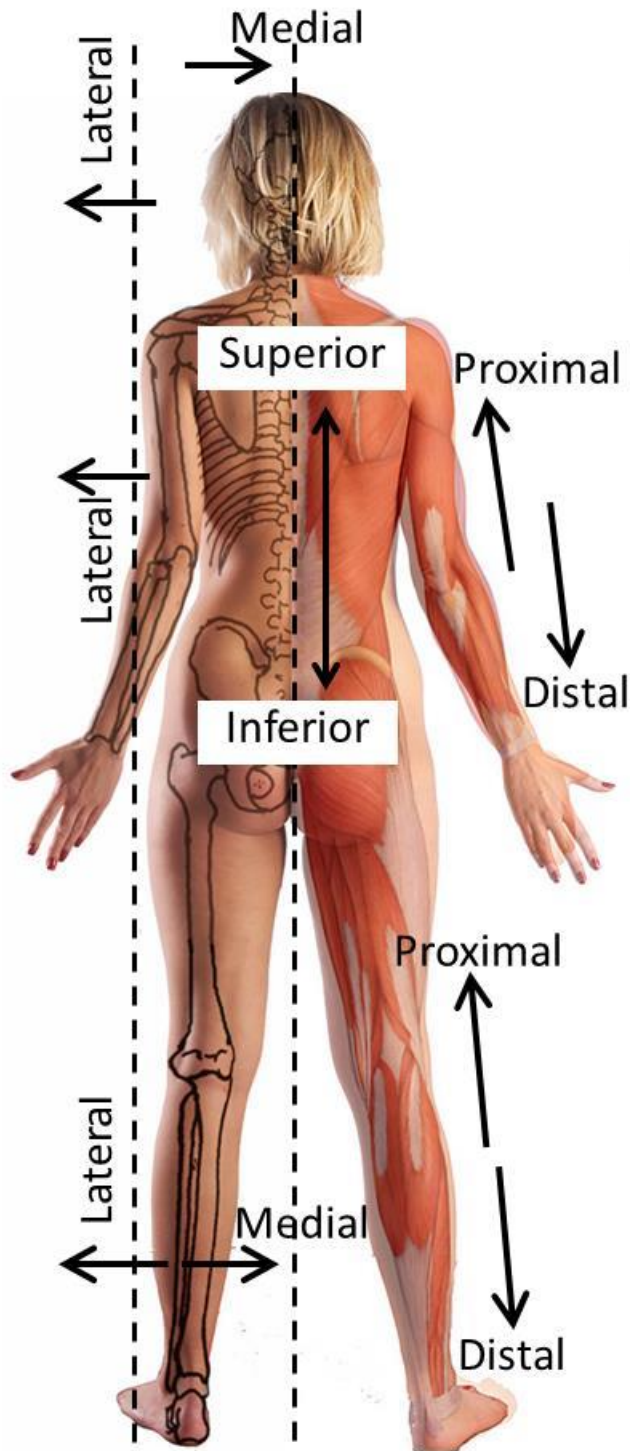
- Proximal – Close to the origin of body part
- Distal – Farther from the origin of the body part

- Superficial – At the surface
- Deep – More internal - away from the surface

Complete the sentences using the correct directional terms you have learned:

- In the anatomical position, the palm of the hand is on the Anterior surface of the body
- The eyebrow is Superior to the eye
- The thumb is Lateral to the little finger
- Skin is Superficial to muscle
- The bridge of the nose is Medial to the eye
- The pelvis is Inferior to the ribs
- The ankle is Distal to the knee
- The hip is Proximal to the knee
- The elbow is Distal to the shoulder
- The femur is Deep to the quadriceps
- The vertebral column is Posterior to the sternum

Anatomical directional terms:



Anatomical regional terms. Anatomists, doctors, nurses and health professionals use a specific set of words to identify regions of the body. It's like fancy doctor speak for things you might call your thigh or armpit.

- Look up each of the following regions in the textbook or online; write very simple one to two word definitions using everyday language. Some of these regions overlap. Don't let this confuse you (e.g., umbilical region within the abdominal region).

- Cephalic – Head
- Orbital – Eye
- Cervical – Neck
- Thoracic – The chest
- Brachial – Arm
- Antecubital – Inner forearm
- Abdominal – Abdomen muscle
- Axillary – Armpit area (including lymph nodes)
- Lumbar – Spine
- Inguinal – Groin
- Femoral – Femur or thigh
- Pelvic – Pelvis
- Buccal – mouth
- Tarsal – The lower leg
- Cranial – The brain
- Pectoral – Pecs or chest
- Umbilical – Navel / belly button
- Epigastric – Upper abdomen
- Sternal – The chest wall
- Gluteal – Buttocks
- Sacral – Low back / tailbone
- Carpal – Wrist

Label the anatomical regions on the images:

